OCTOBER 7, 1944

Railway Age

Founded in 1856

THE LIBRARY OF CONGRESS
SERIAL RECORD
OCT 27 1944
GIFT

EQUALIZE BRAKE FORCES

REDUCE TRUCK MAINTENANCE

WINE

THE WINE RAILWAY APPLIANCE CO.
TOLEDO, OHIO

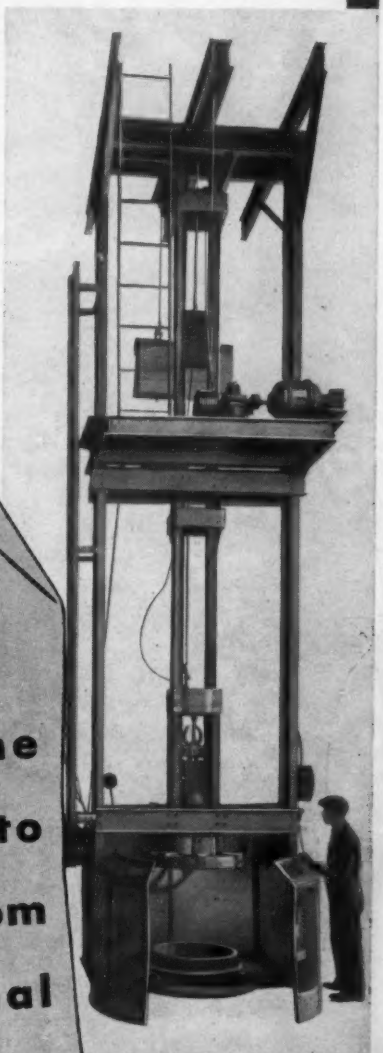
BRAKE BALANCER

7 RIGID TESTS FOR CHILLED CAR WHEELS

• The Code of Practice of the Association of Manufacturers of Chilled Car Wheels, ensures the railroads of a dependability of product so important where safety, economy and long life are basic factors of operation.

• "The 7 Rigid Tests for Chilled Car Wheels" is just another "double check" to guarantee the maintenance of these superior quality standards of Chilled Car Wheels.

TF1
R2



Drop Test Machine

Test No. 4
DROP TEST

The object of the Drop Test is to determine freedom from internal stresses in the plate of the wheel

THE 7 RIGID TESTS THAT GUARANTEE UNIFORMITY

1. Chill test block taken at least once in every ten wheels poured.
2. One complete chemical analysis with each heat.
3. Constant pyrometer checks for accurate processing temperature.
4. *Drop test of finished wheel (A.A.R. Specifications).*
5. Thermal test of finished wheel (A.A.R. Specifications).
6. Test for Rotundity.
7. Brinell Hardness test for maximum and minimum chill limits.

a *Salute* to the AMERICAN RAILROADS for their magnificent War Performance

ASSOCIATION OF MANUFACTURERS OF CHILLED CAR WHEELS

230 PARK AVENUE, NEW YORK, N. Y. • 445 NORTH SACRAMENTO BOULEVARD, CHICAGO, ILL.

Organized to achieve: Uniform specifications — Uniform inspection — Uniform product

3824

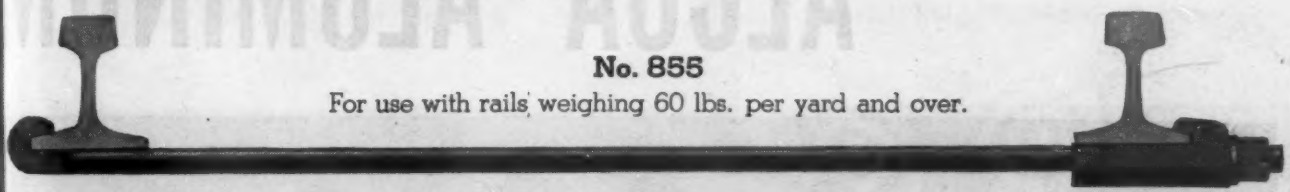
Published weekly by Simmons-Boardman Publishing Corporation, 1309 Noble Street, Philadelphia, Pa. Entered as second class matter, January 4, 193[illegible], at the Post Office at Philadelphia, Pa., under the act of March 3, 1879. Subscription price $6.00 for one year U. S. and Canada. Single copies, 25 cents each. Vol. 117, No. 15.

WHY BETHLEHEM GAGE RODS mean less work for maintenance crews

In these days of manpower shortages, when even minutes are at a premium, Bethlehem Gage Rods are saving plenty of time each week for thinned-out maintenance crews.

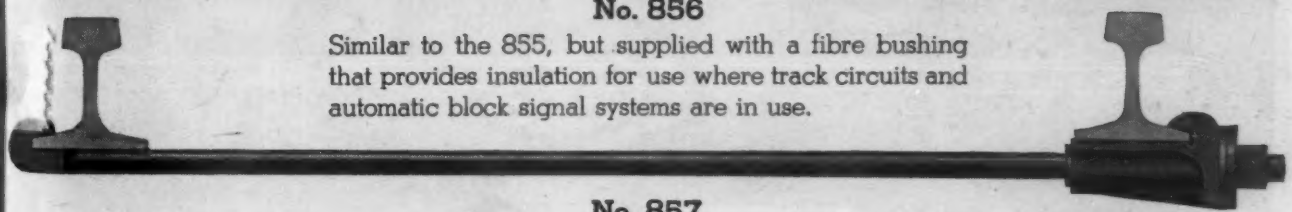
Installation is simplicity itself. A forged steel hook on one end and a heavy, adjustable clip on the other fit snugly over the outside edges of the rail flanges, thus providing a means of holding track in correct alignment and distributing the lateral thrust of the wheels. As a result, frequent regaging of the track is unnecessary—and the hours saved can be invested in other types of maintenance work so vital under today's conditions.

Bethlehem Gage Rods are furnished in four designs:



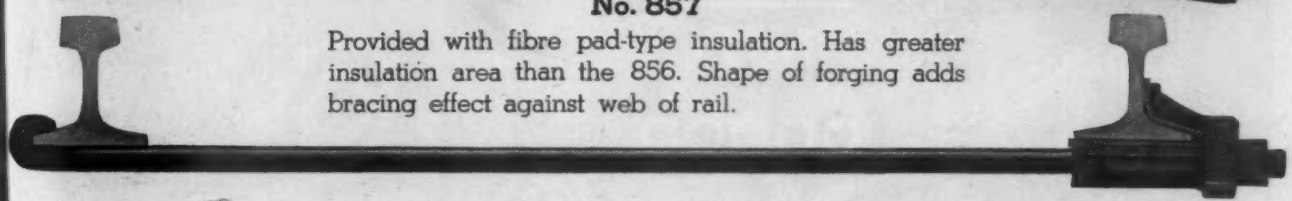
No. 855

For use with rails weighing 60 lbs. per yard and over.



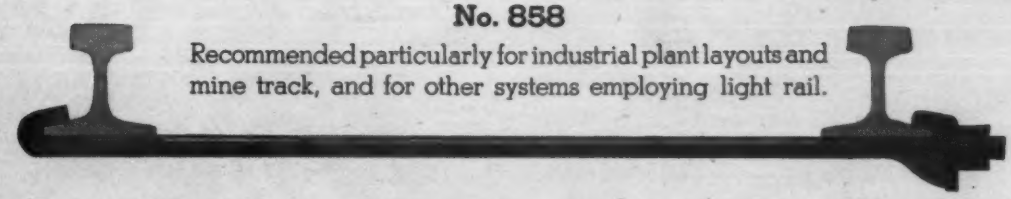
No. 856

Similar to the 855, but supplied with a fibre bushing that provides insulation for use where track circuits and automatic block signal systems are in use.



No. 857

Provided with fibre pad-type insulation. Has greater insulation area than the 856. Shape of forging adds bracing effect against web of rail.



No. 858

Recommended particularly for industrial plant layouts and mine track, and for other systems employing light rail.

Where to use Bethlehem Gage Rods

ON TRESTLES, BRIDGES, AND BRIDGE APPROACHES ★ AT FROG HEELS AND AHEAD OF SWITCH POINTS
IN TUNNELS ★ ON CAR FLOATS ★ ON CURVES ★ AT STANDPIPES ★ AT ASH PITS
IN MINE AND PLANT LAYOUTS ★ AT WATER TOWERS ★ IN ROUNDHOUSE AND TURNTABLE LEADS

and at many other points along standard and narrow-gage tracks. Ask a Bethlehem engineer to give you the full story.

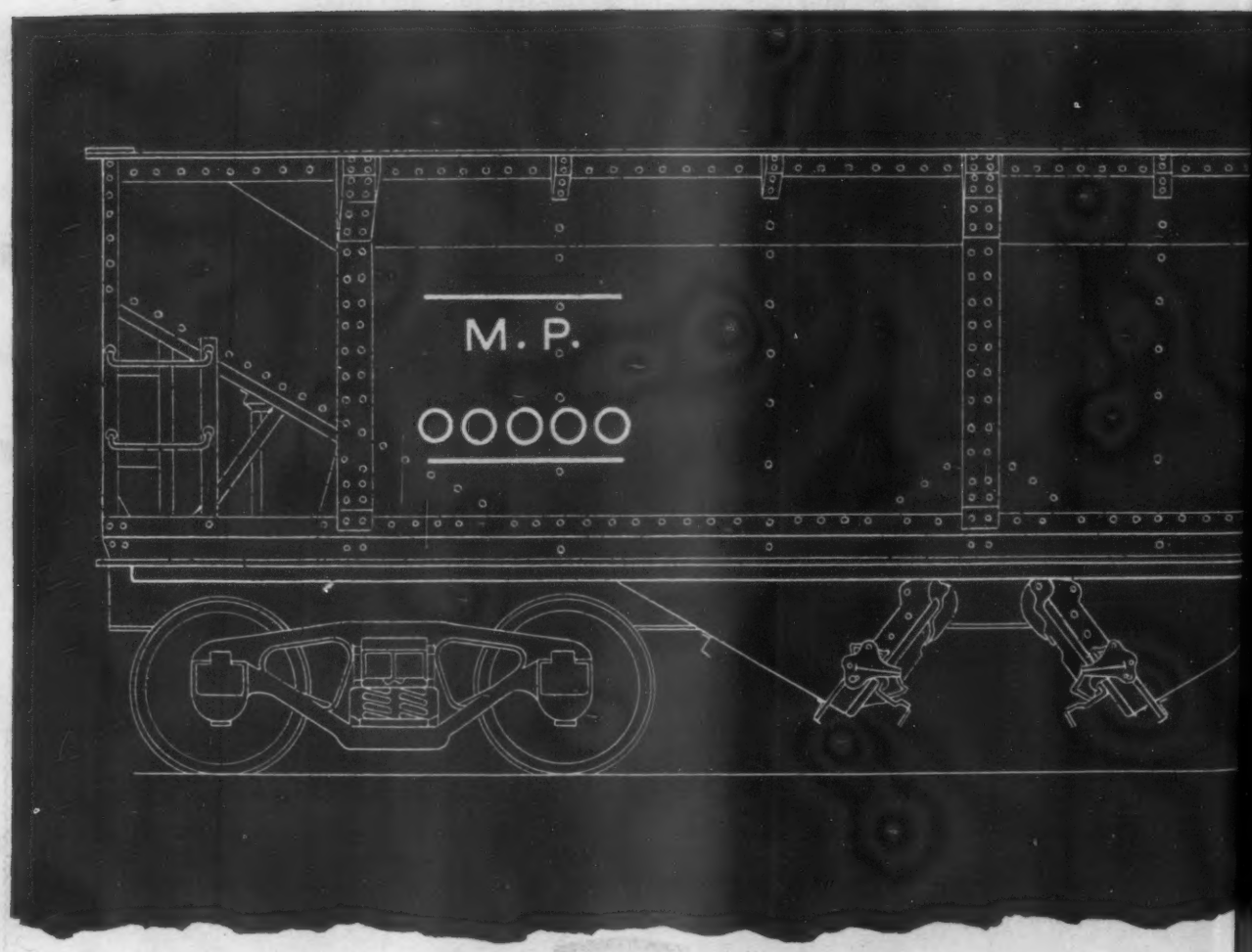
BETHLEHEM STEEL

Missouri-Pacific orders

25 HOPPER CARS

built of

ALCOA ALUMINUM



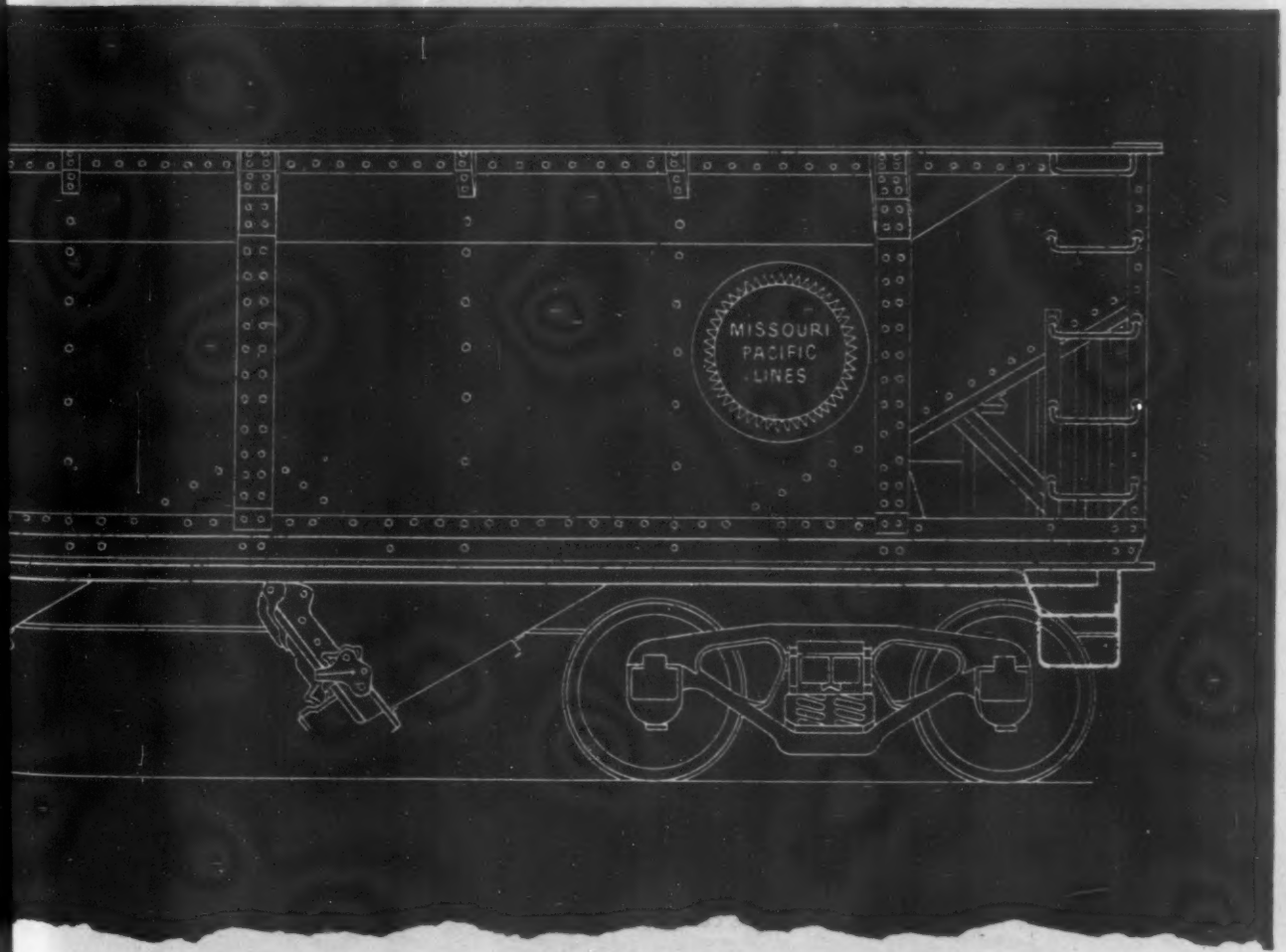
Aluminum hopper car, designed by American Car & Foundry Company in cooperation with engineering staffs of Missouri-Pacific Lines and Aluminum Company of Am

With an enviable 12-year test period behind them, aluminum hopper cars will now step into regular revenue service. Missouri-Pacific Lines have placed an order with American Car & Foundry Company for twenty-five of these cars. Bodies are to be of all-aluminum, except for steel center sills, bolsters, and certain specialties.

Because of the lighter weight of aluminum, these cars weigh less—37,100 pounds against 50,100 pounds, or a saving of 13,000 pounds. They can, therefore, carry an additional load of 6½ tons, compared with the A.A.R. steel car, without placing any more load on the axles and without requiring greater locomotive effort. To do this, they will be increased thirty-nine inches in length, giving a volume increase of 240 cubic feet.

At least thirty years of service life is indicated for this aluminum construction, even when carrying sulfur and coal.

Alcoa's engineers are available to assist railroads and car builders in the application of aluminum alloys to their new or existing equipment. For this help, write ALUMINUM COMPANY OF AMERICA, 2178 Gulf Bldg., Pittsburgh 19, Penna.



ALCOA ALUMINUM

The Barco Flexible Joint—in a complete range of designs for transportation and industrial needs—has long been the accepted standard of reliability in connections for fluid-conveying pipes. Providing responsive movement through every angle, a Barco Flexible Joint absorbs vibration and compensates for expansion and contraction. The broad experience and exact technical skill of our engineering department is available to you on request. Barco Manufacturing Company, Not Inc., 1800 Winnemac Avenue, Chicago 40, Illinois.

In Canada: The Holden Co., Ltd., Montreal, Canada

"MOVE IN EVERY DIRECTION"

Not just a swivel joint...but a combination of a swivel and ball joint with rotary motion and responsive movement through every angle.

BARCO FLEXIBLE JOINTS

THE FREE ENTERPRISE SYSTEM IS THE SALVATION OF AMERICAN BUSINESS

IT'S RAILROADING—IN ANY LANGUAGE

The young Mexican track worker, Baldamero of the black eyes and flashing smile, knew hardly a word of English, but when the big Yankee section boss threw his arms into the air and exploded with a mighty "Getoutoftheway"—ah, mi amigo, that meant, "Jump," in any language.

And jump young Baldamero did. The Chicago & North Western's racing streamliner poured down the track. Baldamero was safe . . . and when the track gang went back to work, he was with it.

It happened one day near Clinton, Ia. That night at Clinton High School, Baldamero was learning those phrases vital in any railroader's life—"be careful," "watch out," "jump," and, of course, "Get out of the way." And so were his friends Pedro and Jose and Juan and Salvador and Ricardo, all fine Mexican laborers up from their native Durango or Chihuahua to help Uncle Sam meet a wartime pinch.

Here, with the help and direction of C & NW men, was a practical working of the Good Neighbor policy: strong, avid young Mexicans working by day on the railroad, attending school at night to learn English they would carry back with them across the Rio Grande.

The Mexicans needed English to help them in their work on the railroad and give them a better understanding of U.S. people and customs. Clinton High School's Spanish teachers took on the job as a challenge, met it with fine ability, found the Mexicans eager, attentive pupils.

The Mexicans learned the simple things in conversational English, of course—how to count, tell time, name food, the days of the week, and the months of the year. How to ask travel directions, shop for men's clothing, how to talk to the barber or doctor or dentist. It might seem a long way from railroading. So might the gay Mexican songfests, with guitar softly playing "Cielito Lindo" or "Jalisco," after lessons were done.

But America's railroads have shown they can find a way to do virtually anything in wartime—and here was the C & NW proving it again.

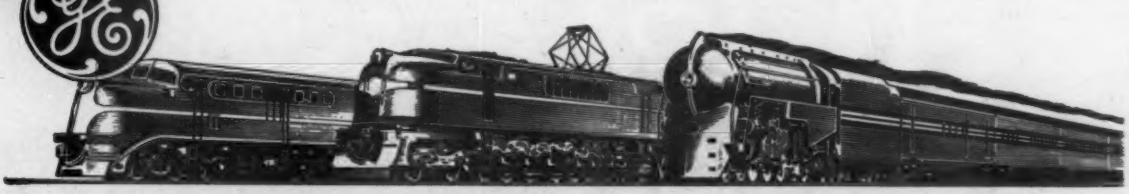
As they say in Old Mexico and Clinton . . . Hasta luega!

*—The Trackwalker**

★ ★ ★

Alco GE

Last fall a large eastern road replaced 11 steamers with 7 Alco-G.E. 1000-hp diesel-electrics. They tell us these switchers have saved $116,000 in eight months and will pay for themselves in less than four years.



AMERICAN LOCOMOTIVE • GENERAL ELECTRIC

Copr., 1944, American Locomotive Company and General Electric Company **Reg. U. S. Pat. Off.*

113-95-9600

OF ALL KNOWN METALS Suitable for Structural Purposes, STAINLESS STEEL Has the Most Desirable Combination of Physical Properties.

Every one of the celebrated name trains and hundreds of railway passenger cars built by the Edward G. Budd Manufacturing Company is constructed of stainless steel.

Why did we choose this material? We had all available metals to select from. We had experienced metallurgists, an unsurpassed staff of engineers, testing laboratories. We do not make steel. We had no commitments, no obligations, no prejudices.

After considering all metals suitable for structural use, we chose stainless steel for these reasons:

It is the strongest

It has the highest resistance to fatigue

It has the highest impact resistance

It resists abrasion better than any other

It is the only one non-corrosive—no painting required.

Its high resistance to impact is unimpaired at low temperatures

It has more strength at high temperatures

Every metallurgist knows these facts to be true. Substantiation will be cheerfully furnished upon request.

The soundness of our original decision has been proved by ten years' experience in which Budd-built trains have travelled in service more than 60,000,000 miles.

Budd's use of stainless steel, permitting lightweight construction with strength and safety equal or superior to any known before, marked the beginning of truly modern railway passenger equipment. It will go much farther. Budd builds for the future.

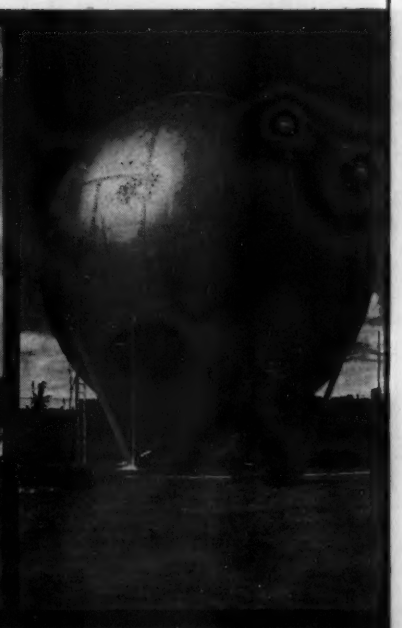
EDWARD G. BUDD MANUFACTURING COMPANY

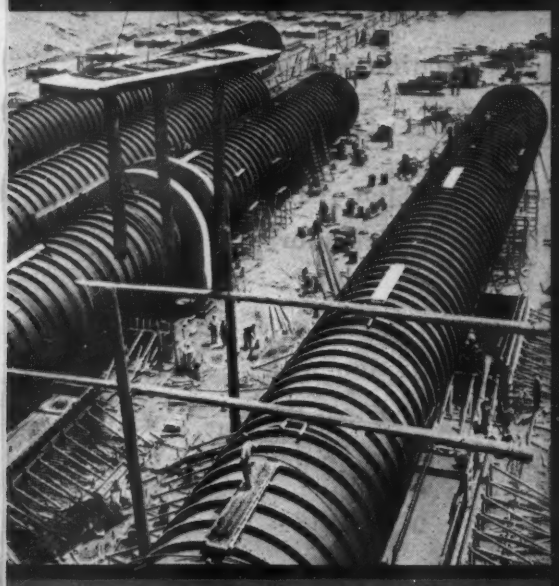
PHILADELPHIA • DETROIT

CHICAGO • NEW YORK • ST. LOUIS • SAN FRANCISCO • WASHINGTON

Budd

Where Permanence and Safety

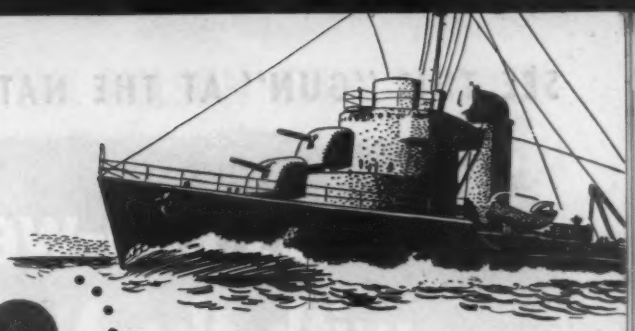




TECHNICAL DATA published regularly in FASTENERS, free to operating and engineering men. Write today.

AMERICAN INSTITUTE O

are "*musts*"—



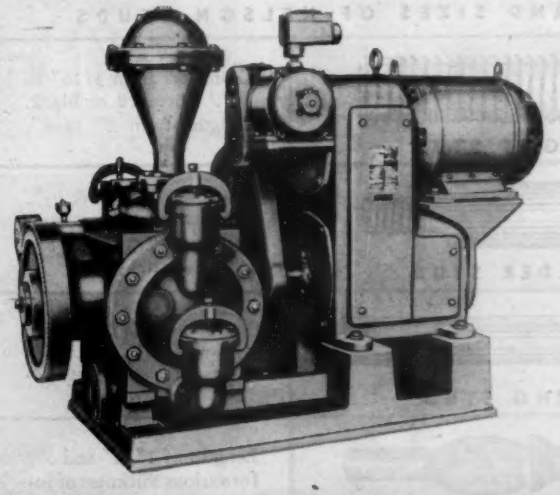
FASTENERS

BOLTS NUTS
SCREWS
RIVETS

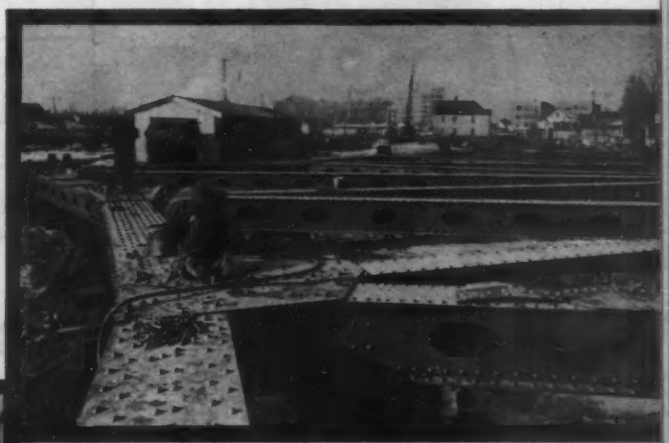
PROVIDE MAXIMUM DURABILITY AND SECURITY AT LOW COST

From the tiny screws in precision instruments to huge rivets and bolts in heavy machines and structures, *fasteners* serve engineering designers and manufacturers economically and dependably.

Through continuous research and development, the manufacturers of these headed and threaded fasteners have done much to make their products easier to use and better suited to the service requirements. Among recent improvements are: higher strengths, greater dimensional accuracy, closer fits, effective protective coatings, extensive use of alloy and other materials and heat treatments. Made by mass-production methods, they are available in large quantities and at low cost.



FOR THE SECURITY OF YOUR PRODUCTS, BUILD WITH FASTENERS!

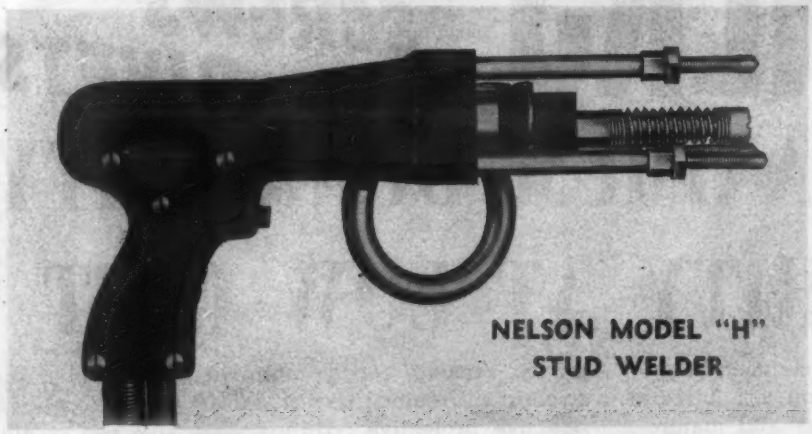


BOLT, NUT AND RIVET MANUFACTURERS

1500 HANNA BUILDING · · · CLEVELAND 15, OHIO

SEE THIS "GUN" AT THE NATIONAL METAL CONGRESS CLEVELAND, OHIO OCTOBER 16-20

Studs end-welded in ½ second with the Nelson Stud Welder!

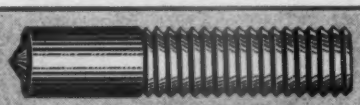
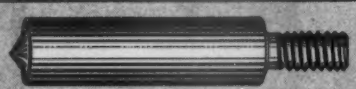
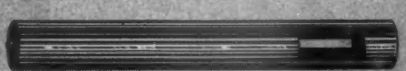
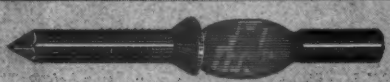


NELSON MODEL "H" STUD WELDER

Light in weight—completely portable, the Nelson Stud Welder is ideal for welding in any position. All Nelson Studs are used with the one gun, by simply interchanging chucks. Multi-gun units are available for production-line uses.

Cutaway view shows complete fusion between stud and metal . . . in ½ second. For strength, accuracy, and time-saving no other means of securing studs can approach this method.

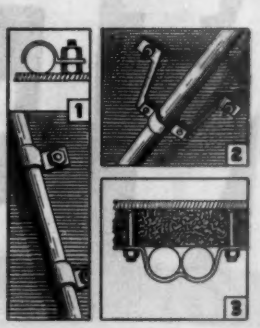
Easy operation makes the Nelson Stud Welder a versatile tool in the hand of any operator, experienced welder or not. 500 to 1500 studs can be welded by one operator per shift because it is simple and completely automatic.

TYPES AND SIZES OF NELSON STUDS	
 STRAIGHT STUD	Diameters from 3/16" to ½". Threaded or blank. Lengths from 1" to 8".
 SHOULDER STUD	Diameters: 7/16" & ½". Lengths: Shoulder from ½" to 7"; extension from ¾" to 1¼".
 LAGGING STUD	Made to specifications. Lengths of 1", 2", 3" and 4". Diameter of ⅜".
 METAL LATH STUD	Lengths of 1", 2" and 3", for various thickness of insulation. Diameter 3/16".
BENT STUDS, DRIVE SCREW STUDS, SPECIAL LENGTHS AND OTHER SPECIALTIES • *Write for complete details, or send us specifications and let us show how stud welding can help you.*	

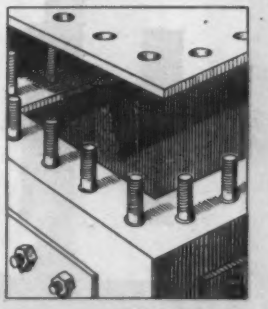
NELSON *Electric Arc*

A FEW RAILROAD APPLICATIONS FOR THE NELSON STUD WELDER

—more than 460 industrial plants and shipyards use it!

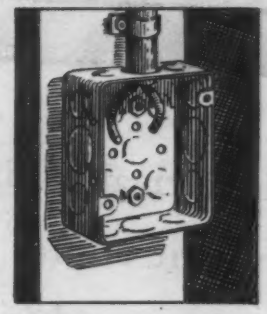


Wiring, conduit, and pipe are quickly secured. Here illustrated are a few methods: 1. Securing conduit. 2. Securing pipe (single and multiple runs). 3. Securing wiring of all kinds over soft insulation materials.

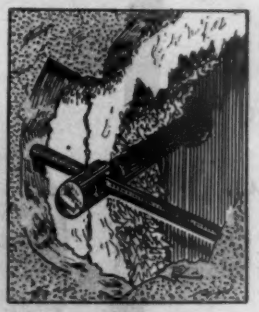


Inspection covers of all types can be secured with Nelson Studs. No drilling holes through casings, or hand welding studs. Studs are automatically welded in less than ½ second. No leaking or loosening.

Wood flooring is secured over metal beams with studs. The flooring is laid, and holes drilled where desired. Studs are welded through the holes and nuts and washers tightened down. A wooden plug is then tapped in to complete the job.

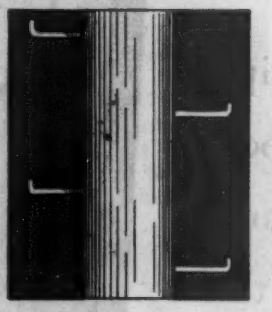


Electrical equipment of all kinds, outlet boxes, circuit breakers, etc., can be secured without drilling metal to secure them or welding on small pads. Accurate locating is easy because all Nelson Studs are pointed.



Lagging studs secure magnesia and other materials for insulation purposes. The stud is welded, and a wire slipped through the stud holes. The blocks of insulation are then placed under the wire and the wire pulled tight. Covering is then added. The hole may be located where desired on the stud. Studs also used to secure storm curtains in locomotive cabs.

Nelson Insulation Pins can be used to secure soft insulation rapidly and securely. They are welded directly through the material without injury to it. Where large metal surfaces must be insulated these pins will save both time and material.



Bent studs for use as steps, etc., are available in several lengths. They are furnished bent and welded directly to metal. Wherever there is need for hooks or steps on metal frames, Nelson Studs of this type may be used with speed, economy, and assure through its welded strength great safety.

For general maintenance of all kinds the Nelson welder is excellent. It will end-weld studs to metal for any kind of repairs. For securing oil lines with straps; for inspection and ventilator covers; air lines; car repair; and for general work of all kinds around the shop.

FREE CATALOG AND SAMPLES
Complete details about how the 460 industrial plants and shipyards are making use of this stud welder may be obtained at once. *Write to:*

NELSON SPECIALTY
WELDING EQUIPMENT CORPORATION
Dept. R, 440 Peralta Ave., San Leandro, Calif.

Eastern Representative: Camden Stud Welding Corp., Dept. 122, 1416 South Sixth St., Camden, N. J.

STUD WELDER

LOOKING

● With the arrival of lighter weight freight car equipment comes higher speeds and greater revenue producing loads.

Monroe engineers with their highly developed experience, have harnessed the basic principles of hydraulic shock control into precision-built Monroe Hydraulic Shock Absorbers for railway use.

This new lighter weight freight car equipment demands new Monroe Hydraulic Shock Absorbers to protect lading, equipment and road bed by absorbing and controlling the violent pounding and damaging vibration.

Our engineers will work with you in the application of Monroe Shock Controls and Sway Bars to your equipment. Just write us.

EAHEAD

You are invited to use our twenty-eight years' experience in Hydraulic Shock Control plus our priceless new experience with Monroe equipped war vehicles.

RAILWAY SUPPLY DIVISION

MONROE

MONROE AUTO EQUIPMENT CO... MONROE, MICH.

To Save a Life or Deal Destruction

The same technical skills and research which enabled Corning to develop the signal lenses that help make railroad operation safe, are now helping to bring defeat to our enemies.

These pieces of glass shown here are the prisms used in the fire control apparatus of our land and sea destruction-dealing weapons of war.

As long as forty years ago Corning research was earnestly occupied in problems of lens making and color control to bring safety in railroad signaling devices. This searching for the new and the better in glass is continuous. It was such uninterrupted research which made it possible for Corning to meet the demands of a nation at war . . . to provide glass products in the quantities and in the time required.

In the same way knowledge gained in war production will better the manufacture of glass products for the peace to follow. Corning can always be counted on to continue its never satisfied search for more dependable, more accurate signal glassware—to find more practical and economical solutions to signal glass problems. Corning Railroad Glassware can be supplied by all manufacturers of lamps, lanterns and signals.

Safety depends on Signal Glassware —America's Railroads depend on Corning.

"CORNING" is a registered trade-mark and indicates manufacture by Corning Glass Works, Corning, N. Y.

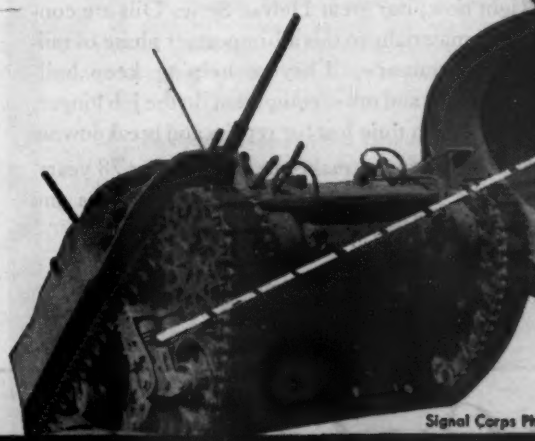
CORNING
means
Research in Glass

Ease "Traffic-Torture" on Spring Groups

Style A-6-A HOLLAND Volute SNUBBER SPRINGS

Release ONE A. A. R. Coil Truck Spring out of EACH Nest!

War-time loads and speeds pound bolster springs without mercy. Soften these shocks by installing Holland Volute Snubber Springs.



Signal Corps Photo

★ *Uncle Sam uses Volute Springs on many tanks*

HOLLAND COMPANY 332 SO. MICHIGAN AVE., CHICAGO

ACTUAL RECORDS OF AMERICA'S SHOW THIS TREMENDOUS

Nine-Tenths of Fighters Need

SOCONY-VACUUM OFFERS
78 Years' Lubrication Experience to Help Preserve Vital Rolling Stock, Shop Machinery and Maintenance-of-Way Equipment!

NOTHING short of miraculous is the war job being done now by America's great railroad plant. Records revealed by the Association of American Railroads show that "about nine-tenths of everything the Armed Services require, is carried by the rails."

Here at Socony-Vacuum, we're fully conscious of the tremendous importance of this supreme railroad effort to the future of America . . . and the world. We're doing everything we possibly can to help.

Our experienced railroad lubrication engineers are working closely with your men on your greatest wartime problem—the preservation of present equipment. Back of them, our research laboratories are busy day and night on new and improved products to meet your exacting needs.

As the result of this close cooperation, we're able to recommend and supply the correct oil or grease for every piece of machinery you operate. This applies to your vital maintenance-of-way equipment as well as your rolling stock and shop machinery.

Right now, our great Delvac Series Oils are contributing materially to this all-important phase of railroad maintenance. They're helping keep bulldozers, trucks and other equipment on the job longer, with minimum time lost for repairs and breakdowns.

We invite you to make the most of our 78 years' lubrication experience, our complete services and our quality products.

SOCONY-VACUUM OIL CO., INC.

Standard Oil of New York Division • White Star Division • Lubrite Division • Chicago Division • White Eagle Division • Wadhams Division
Magnolia Petroleum Company • General Petroleum Corporation of California

GREAT WAR-WORKING RAILROADS

TRANSPORTATION ACHIEVEMENT

Everything Our Moves by Rail!

NEW PRODUCTS, CONSTANT RESEARCH FOR *Correct Lubrication* OF AMERICAN RAILROADS!

New Diesel Lubricants and Fuels: Socony-Vacuum pioneered Diesel lubrication and has kept ahead of Diesel development with new Gargoyle Lubricants to meet today's severe service.

Gargoyle Line for Steam Locomotives: Socony-Vacuum's complete line of Gargoyle Lubricants includes the correct oil or grease for every moving part in every type of steam locomotive.

For Trucks, Buses, Autos: On proved, low-cost performance, Socony-Vacuum's automotive lubricants have become favorites of truckers, bus operators and motorists. They're dependable protection for railroad "feeder" equipment.

Complete Line of Shop Lubricants: Through 78 years' experience, Socony-Vacuum has developed correct Gargoyle Lubricants and correct S/V Cutting Fluids and Rust Preventives for every machine and operation in your maintenance shops.

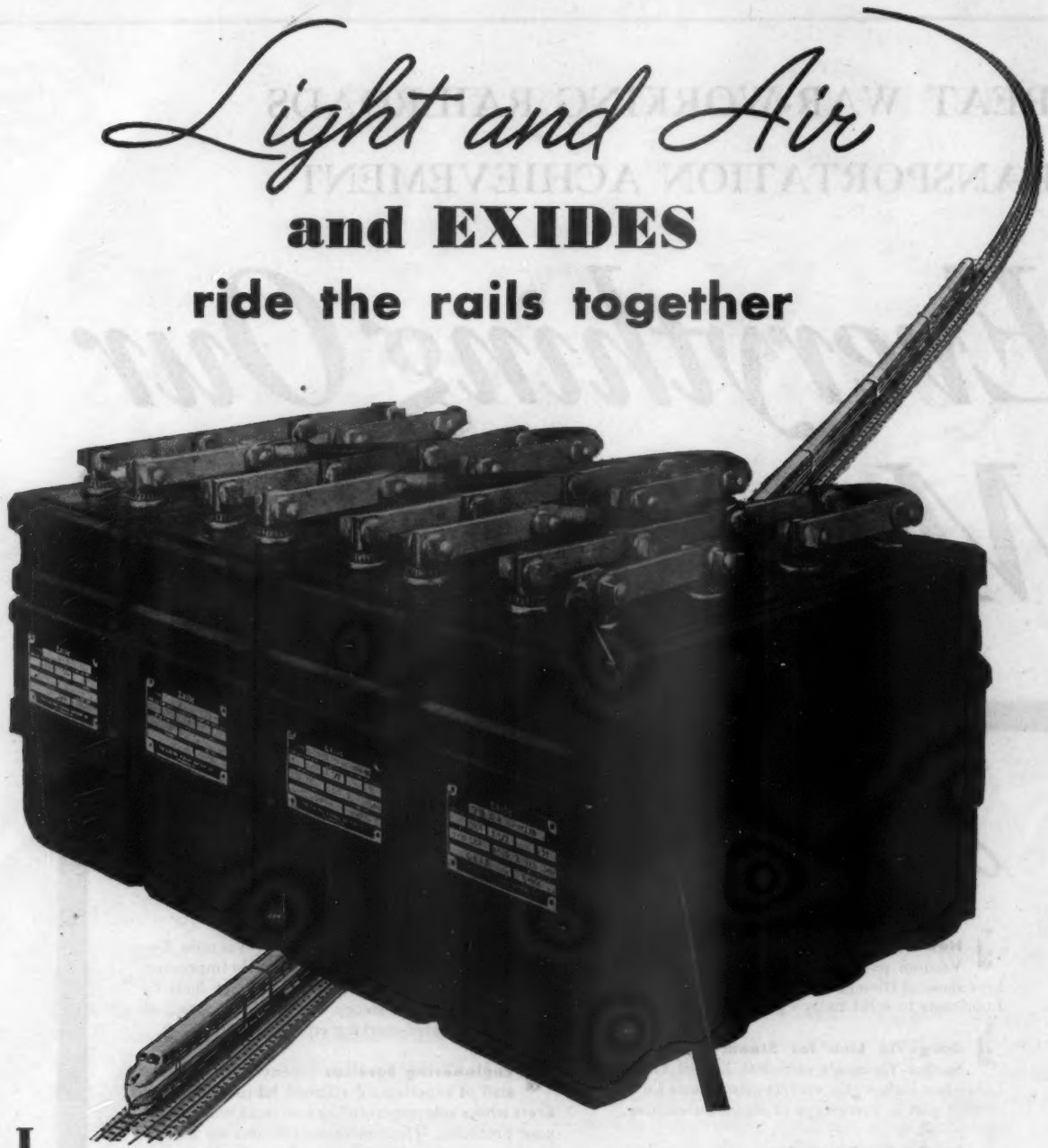
Lubrication Research: Socony-Vacuum Research Laboratories are constantly improving present products and developing new products to help increase the efficiency of your operations and preserve your hard-working equipment.

Engineering Service: Socony-Vacuum has a staff of experienced railroad lubrication engineers whose sole responsibility is to work with you on your problems. Their recommendations are backed by the greatest lubrication experience in the world.

GARGOYLE

Railroad Lubricants

Light and Air
and EXIDES
ride the rails together



LIGHTS glow strong and steady, and car temperatures are kept comfortably uniform—even during long stops—when Exide Batteries provide the power for car lighting and air-conditioning. Exides maintain the high voltage needed for big power loads because they are designed to give maximum output under the heaviest strain.

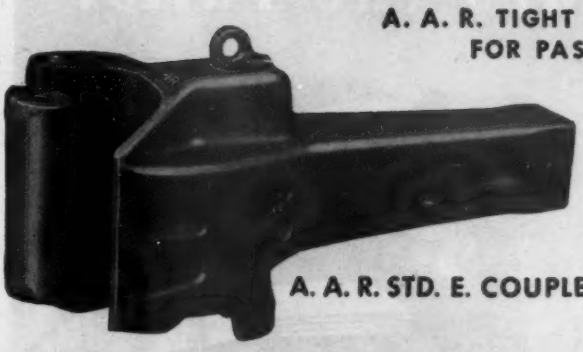
Repeated experience, over many years, has convinced railroad men that they can rely upon Exides to perform efficiently and economically under the most trying conditions. Today's increased passenger traffic, with its severe strain on equipment, is adding further evidence of Exide dependability, long-life and ease of maintenance. When you buy an Exide, you *Buy to Last.* Take care of it, and *Save to Win.*

ARMY E NAVY

Exide
BATTERIES

THE ELECTRIC STORAGE BATTERY COMPANY, Philadelphia 32
Exide Batteries of Canada, Limited, Toronto

A. A. R. TIGHT LOCK COUPLER & YOKE
FOR PASSENGER SERVICE



A. A. R. STD. E. COUPLER

A. A. R. ALTERNATE
STD. E. COUPLER

A. A. R. STD.
VERTICAL PLANE
HORIZONTAL KEY YOKE

A. A. R. ALTERNATE STD.
VERTICAL PLANE SWIVEL YOKE

M N & S Co

National

since 1875 has been making castings for railroad equipment. Today the National line of railroad devices includes:

A. A. R. STANDARD E COUPLERS

A. A. R. TIGHT LOCK COUPLERS

ENGINE COUPLER POCKETS

A. A. R. CERTIFIED DRAFT GEARS

A. A. R. DRAFT YOKES

A. A. R. TYPE JOURNAL BOXES AND LIDS

ISOTHERMOS JOURNAL BOXES

WHEELS

TRUCKS, SIDE FRAMES, BOLSTERS, ETC.

NATIONAL MALLEABLE AND STEEL CASTINGS CO.

General Offices: CLEVELAND. OHIO

Sales Offices: New York, Philadelphia, Chicago, St. Louis, San Francisco.
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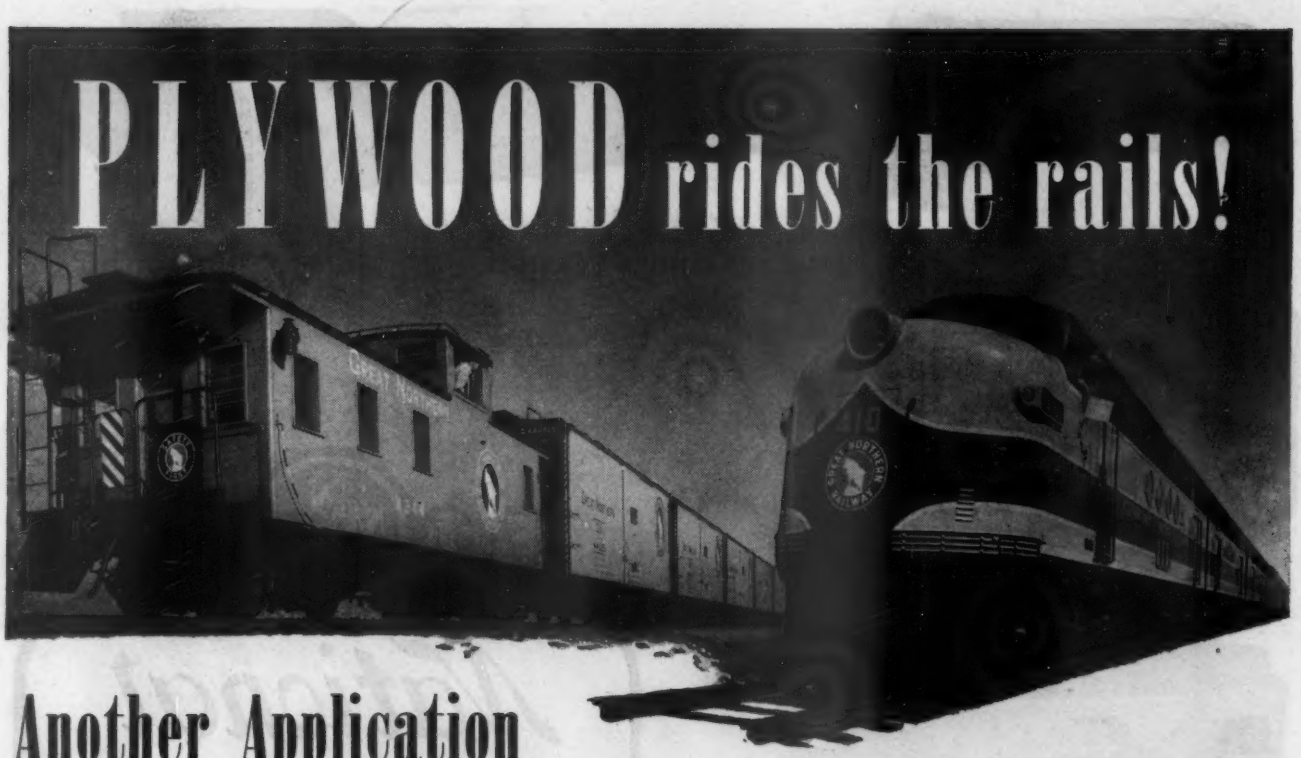
PLYWOOD rides the rails!



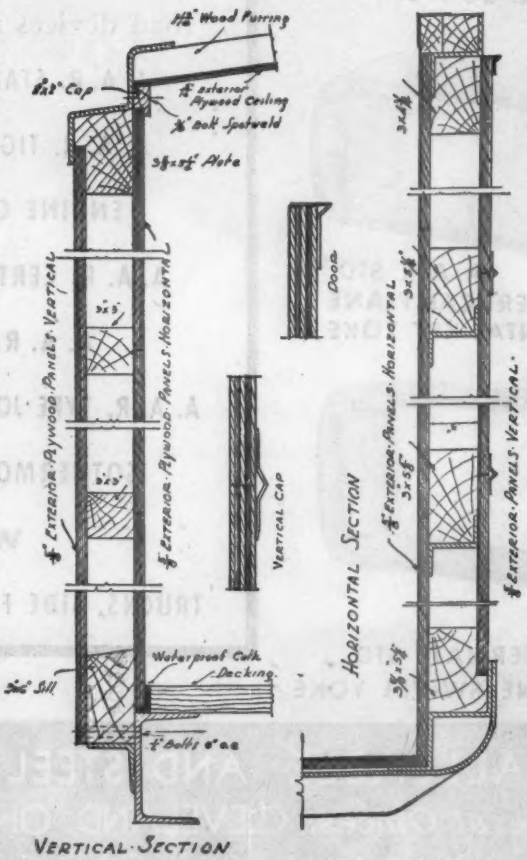
Another Application proving the Durability of Douglas Fir Plywood

Many railroad car builders have used durable Douglas fir plywood for the ceiling and inside lining of freight cars, cabooses and baggage cars—and for complete refrigerator cars.

The Great Northern Railway is the latest to select Douglas fir plywood to do a really tough job. A schedule of 1,000 boxcars, built at the Great Northern's St. Cloud shops, utilized plywood for all outside and inside sheathing, including the ceiling.

Exterior type Douglas fir plywood (made with permanently waterproofed binder) was used throughout the new cars. Outside panels, installed vertically, are 5/8" thick. Inside panels, installed horizontally, are 5/8" thick. Ceiling panels are of 5/16" plywood. Detailed structural sections are shown at the right.

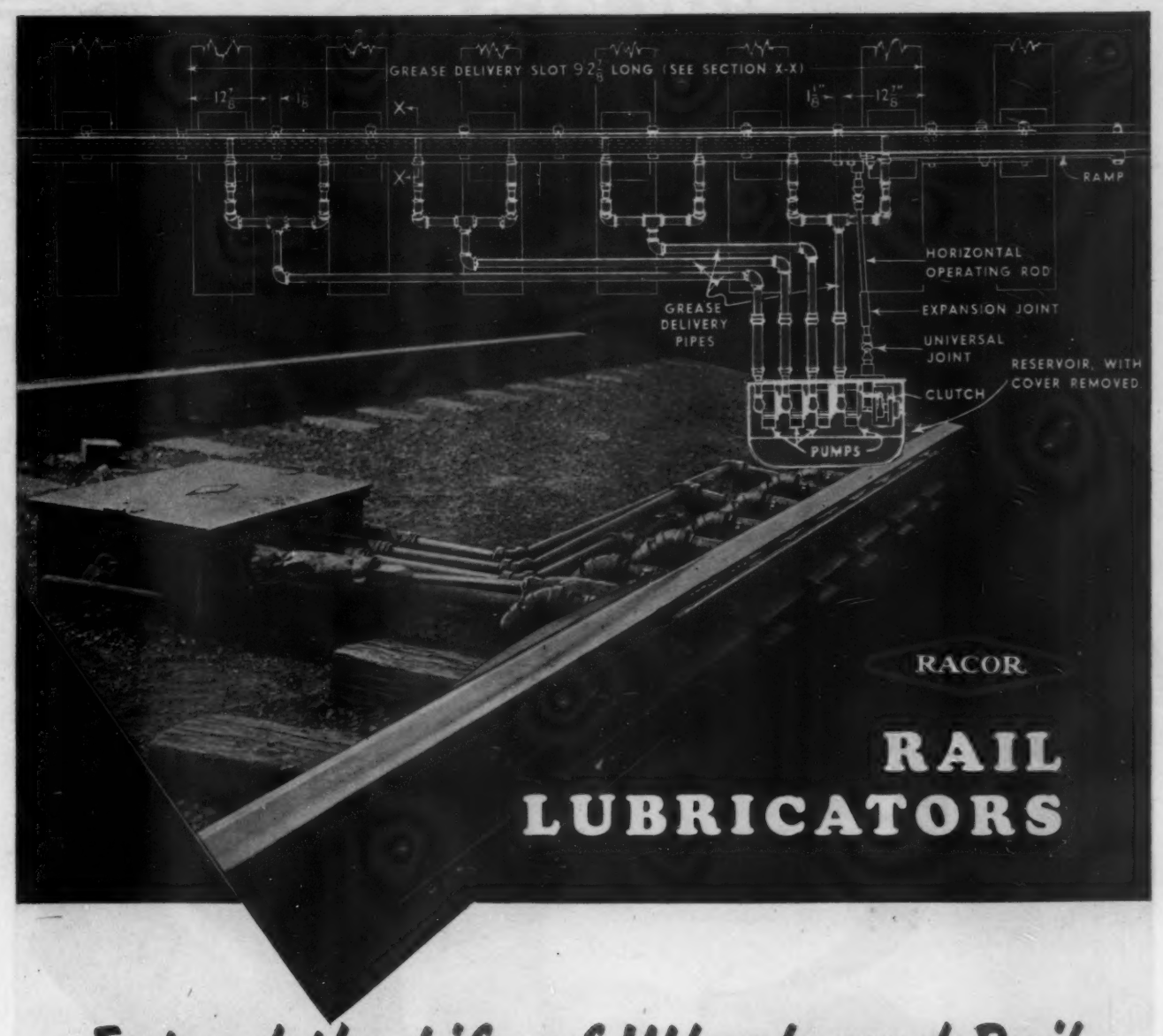
The plywood cars, built with special steel frame and wheel carriages, average two tons lighter than conventional cars. Production schedules called for the completion of six per day. The fact that Douglas fir plywood proves itself ideally suited to such rigorous service demonstrates again that this "miracle wood" is one of your most versatile building materials for every type of structural use. Douglas Fir Plywood Association engineers will gladly answer any query concerning plywood's application to construction work of any kind.



Douglas fir plywood is now available only on highest priorities. Application for allocation must be made by suppliers to the War Production Board.

DOUGLAS FIR PLYWOOD
LARGE. LIGHT. STRONG.
Real Wood PANELS

DOUGLAS FIR PLYWOOD ASSOCIATION, Tacoma 2, Washington



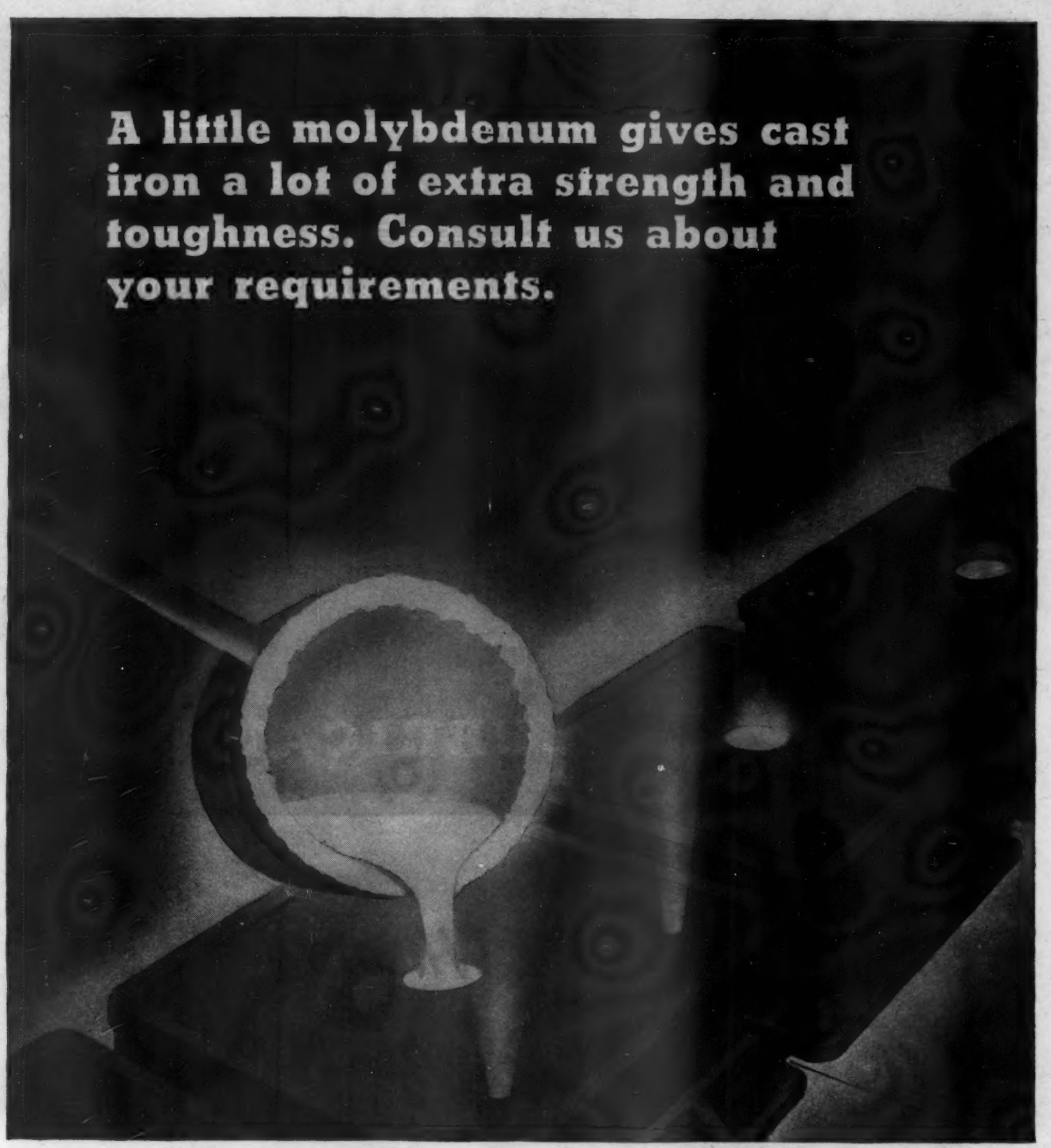
Extend the Life of Wheels and Rail

It has been proved, by extensive tests, that the automatic method of lubricating curves with the Racor Rail Lubricator is quickly paid for from savings made by extending the life of wheels and rails through its use.

Further savings are obtained by reduction of inspection and maintenance to a minimum. This is due to the simple design and rugged construction of the Lubricator.

Installations made at the start of a curve will provide protection for 360° of included angle curvature, as car wheels carry the lubricant without appreciable waste to the points where it is needed.

RAMAPO AJAX DIVISION
230 PARK AVENUE, NEW YORK
HILLBURN, N. Y. EAST ST. LOUIS, ILL. LOS ANGELES, CAL.
NIAGARA FALLS, N. Y. PUEBLO, COLO. SEATTLE, WASH.
CHICAGO, ILL. SUPERIOR, WIS. NIAGARA FALLS, ONTARIO
Brake Shoe COMPANY
3803



CLIMAX FURNISHES AUTHORITATIVE ENGINEERING DATA ON MOLYBDENUM APPLICATIONS.

ARMY E NAVY

MOLYBDIC OXIDE, BRIQUETTED OR CANNED • FERROMOLYBDENUM • "CALCIUM MOLYBDATE"

Climax Molybdenum Company

50 [illegible] Avenue • New York City

MOLY

In Peace ... AS IN WAR

AMERICAN railroads are rendering outstanding service to the Nation ... they're doing a big job well ... faithfully discharging their obligation ... with war-weary equipment.

But ... regardless of how well the wartime job has been done ... the war record will not suffice ... when throngs of our people released from the privations of war will demand transportation that provides the acme of excellence in both comfort and luxury.

When men and metal and production facilities are demobilized ... GoodForm Aluminum Chairs ... Tables ... and other equipment items built to the same high standard ... will again serve luxury-loving travelers with satisfying comfort ... distinguished styling and colorful beauty ... the new standard in transportation.

The General Fireproofing Company • Youngstown 1, Ohio

METAL DESKS • ALUMINUM CHAIRS • METAL FILING CABINETS • STEEL SHELVING • FILING SUPPLIES • SAFES • STORAGE CABINETS

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THE GENERAL FIREPROOFING CO.
YOUNGSTOWN 1, OHIO
U.S.A.

Here's a New, Easier, More Economical Way to Seal Car Windows

PRESSTITE

EXTRUDED GLASS SEALER TAPE

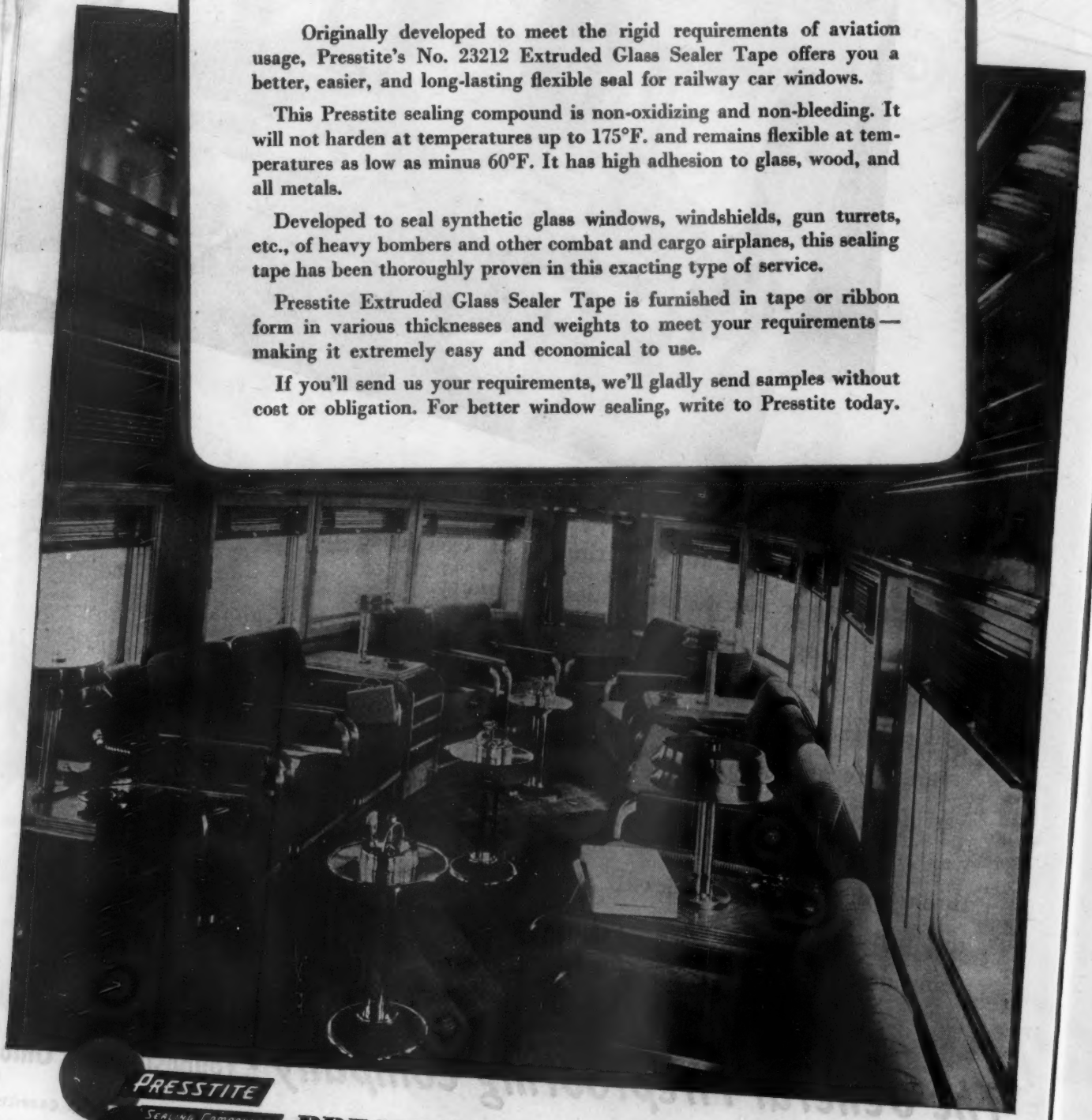
Originally developed to meet the rigid requirements of aviation usage, Presstite's No. 23212 Extruded Glass Sealer Tape offers you a better, easier, and long-lasting flexible seal for railway car windows.

This Presstite sealing compound is non-oxidizing and non-bleeding. It will not harden at temperatures up to 175°F. and remains flexible at temperatures as low as minus 60°F. It has high adhesion to glass, wood, and all metals.

Developed to seal synthetic glass windows, windshields, gun turrets, etc., of heavy bombers and other combat and cargo airplanes, this sealing tape has been thoroughly proven in this exacting type of service.

Presstite Extruded Glass Sealer Tape is furnished in tape or ribbon form in various thicknesses and weights to meet your requirements — making it extremely easy and economical to use.

If you'll send us your requirements, we'll gladly send samples without cost or obligation. For better window sealing, write to Presstite today.

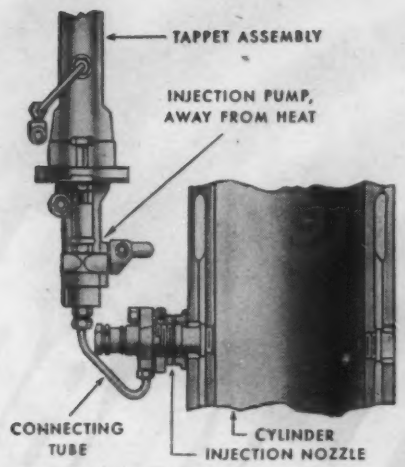


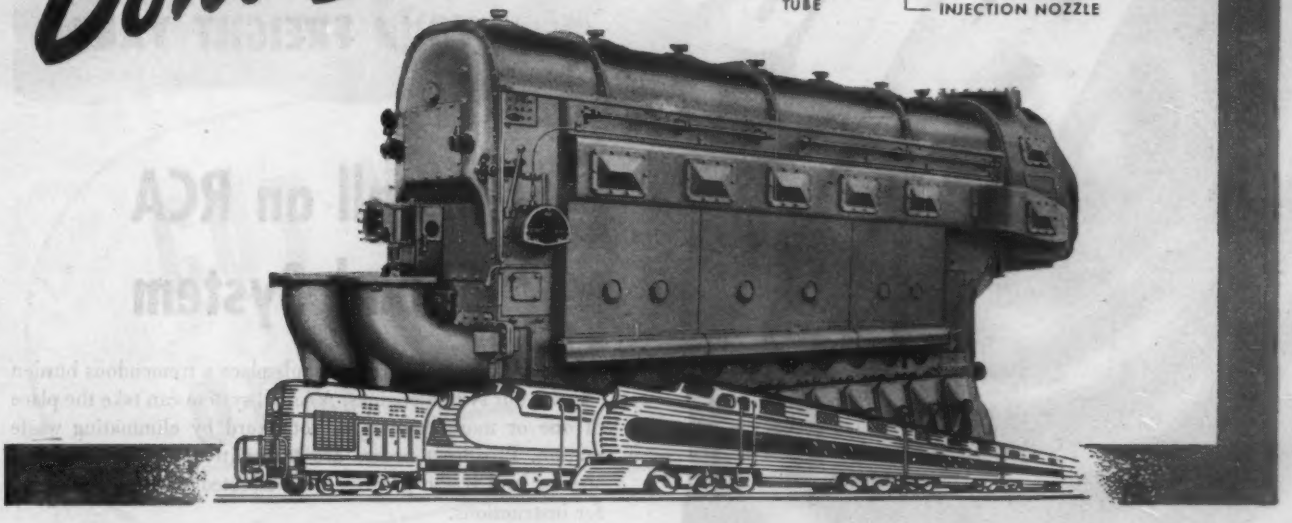
PRESSTITE
SEALING COMPOUNDS

PRESSTITE ENGINEERING COMPANY
3954 Chouteau Avenue, St. Louis 10, Mo.

Why Fairbanks-Morse Locomotive Diesel Injection Pumps

Don't Bind





ON the Opposed-Piston Diesels which power Fairbanks-Morse Locomotives, fuel injection pumps are separate from the injection nozzles on the cylinders.

This *increases pump dependability*, because it permits locating the pumps out of contact with combustion heat. Heat tends to make precise pump parts bind.

The pumps are placed where *easy to service* from the floor . . . a factor in boosting locomotive availability.

Fairbanks, Morse & Co., Fairbanks-Morse Building, Chicago 5, Illinois.

BUY MORE WAR BONDS

A name worth remembering!

FAIRBANKS-MORSE

Install an RCA Sound System

TODAY's enormous freight hauls place a tremendous burden on your switch engines. A sound system can take the place of one or more engines in your yard by eliminating waste motion. Broadcast orders are transmitted through the yard speaker and traffic progresses as directed—without stopping for instructions.

An RCA Sound System puts your yard master in touch with every worker and car. He can coordinate all operations—prevent unnecessary trips. Install a sound system now—get the maximum use of your railroad's rolling stock.

RCA Sound Systems are also available for your passenger stations for paging and making announcements. Other RCA Sound Systems for your home office, ticket agents, and operating departments provide inter-communication and the benefits of Industrial Music — help your entire organization function smoothly and efficiently.

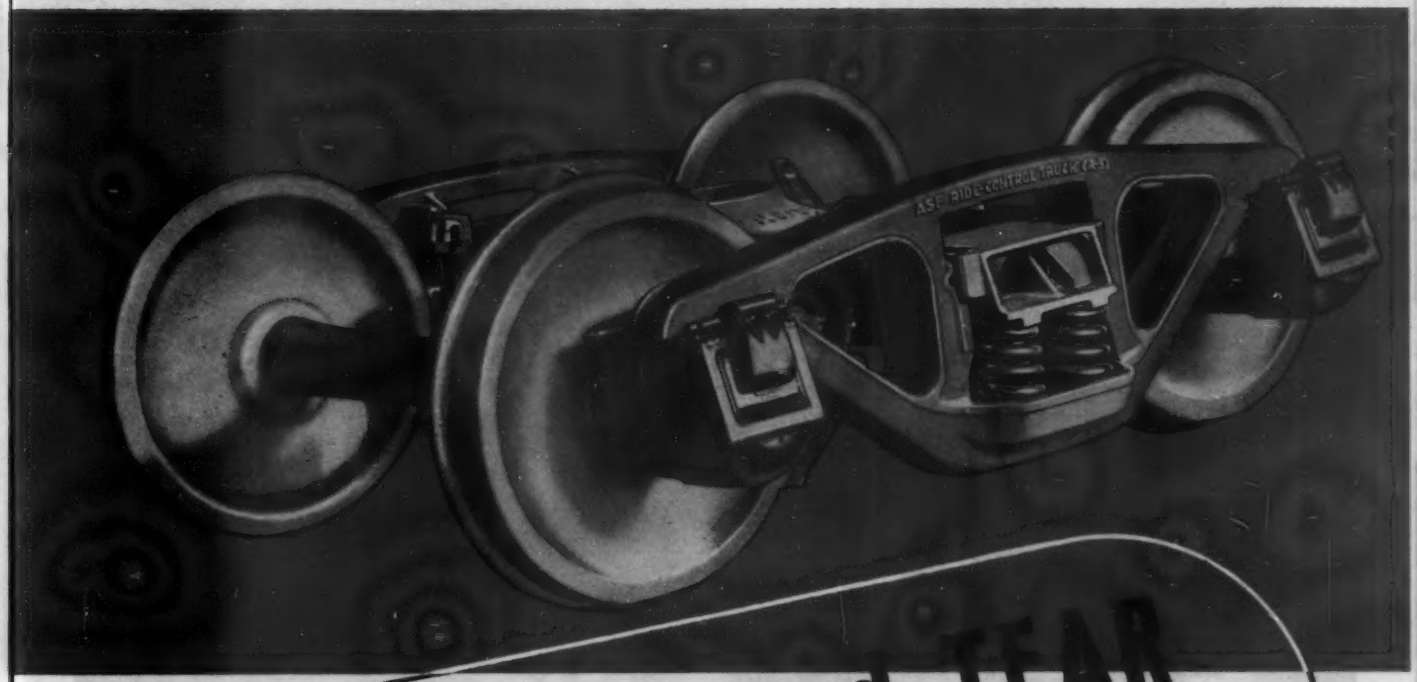
Modernize your station, yard and office with RCA Sound. Call in an RCA representative to study your needs, or write RADIO CORPORATION OF AMERICA, Sound Equipment Section, Box 70-85, Camden, New Jersey. In Canada, RCA VICTOR COMPANY LIMITED, Montreal. **BUY MORE WAR BONDS**

RCA SOUND SYSTEMS

RADIO CORPORATION OF AMERICA

RCA VICTOR DIVISION · CAMDEN, N. J.

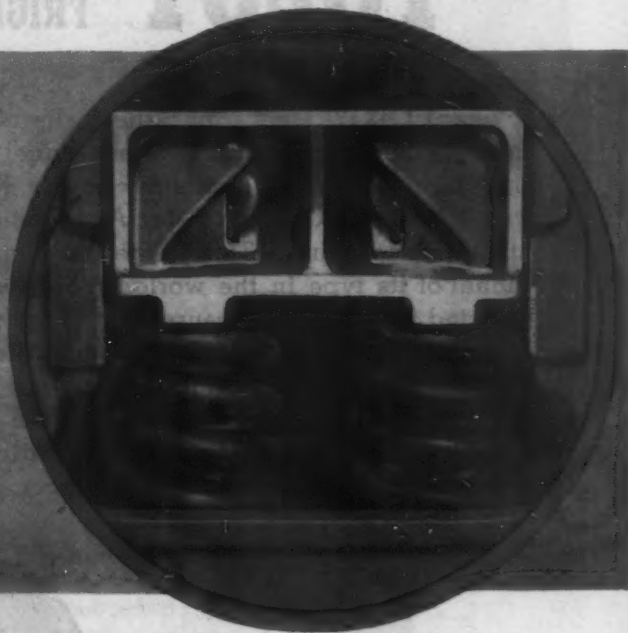
THE TRUCK FOR TODAY'S NEED . . . TOMORROW'S SPEED!



CUT WEAR and TEAR and ROADBED CARE!

NO SPRING PLATES
NO SPRING PLANKS

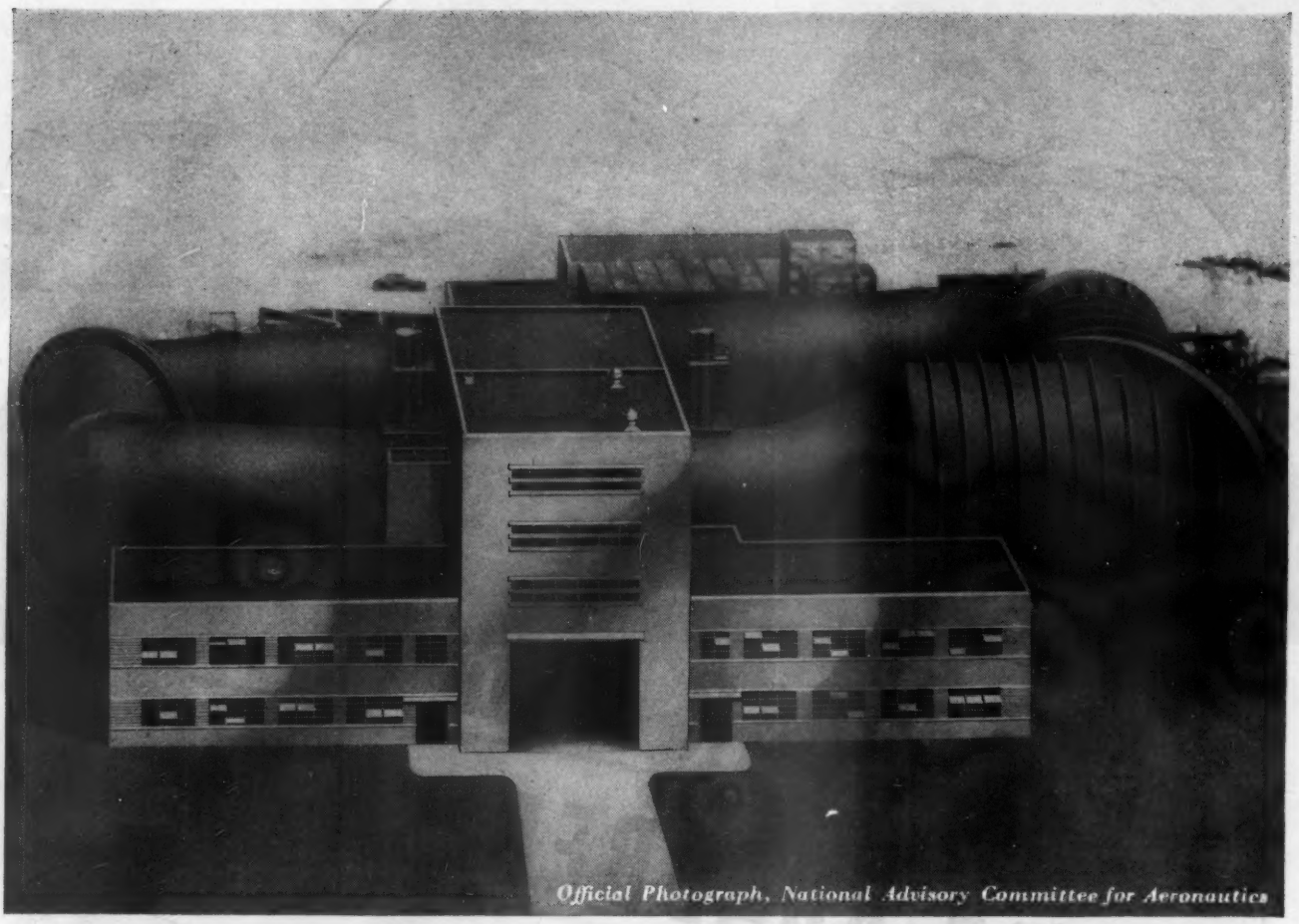
Because the A. S. F. Ride-Control Truck (A-3) prevents destructive harmonic oscillation, no heavy rhythmic pounding is transferred from rail to roadbed. Rail-end batter, too, is reduced. And, since lateral truck motion is also controlled, cars ride evenly—without the swaying that otherwise exerts damaging pressures first on one side of the roadbed, then on the other. In addition, the Ride-Control system of balanced friction pressures prevents the roadbed wear often attributed to trucks that tend to go out of square in rounding a curve. This truck not only cushions the lading that it carries but is easy on rail equipment and roadbed as well.



AMERICAN STEEL FOUNDRIES

CHICAGO

MINT-MARK OF ⬡ FINE CAST STEEL



Official Photograph, National Advisory Committee for Aeronautics

YOLOY AIDS JET PROPULSION RESEARCH IN FRIGID STRATOSPHERE HURRICANES

YOLOY steel forms the walls of a new sub-zero high-altitude wind tunnel at the engine research laboratory of the National Advisory Committee for Aeronautics, at Cleveland, Ohio. This is the only wind tunnel of its type in the world. Yoloy was selected for this job because of its high resistance to impact and its freedom from brittleness at very low temperatures.

This wind tunnel is already in use in advanced studies of jet propulsion engines and other critical development projects. In the tunnel, an 18,000 hp motor driving a 32½-foot fan generates a 500 m.p.h wind at a temperature of 48° below zero. The tunnel also duplicates the low pressures of high altitudes.

Yoloy is a high tensile, low carbon nickel-copper alloy steel. It is highly resistant to corrosion, is easy to machine and form and weld, and its unusual strength makes it ideal for structures and products where weight saving is important. Yoloy is available in plates, sheets, strip, shapes, wire, seamless and electric weld pipe.

This Yoloy-lined N.A.C.A. wind tunnel, only one of its kind in the world, produces the extremely low temperatures and pressures of the substratosphere, for testing and improving aircraft and engine performance.

YOUNGSTOWN

THE YOUNGSTOWN SHEET AND TUBE COMPANY

YOUNGSTOWN, OHIO

Manufacturers of

CARBON - ALLOY AND YOLOY STEELS

Pipe and Tubular Products - Sheets - Plates - Conduit - Bars - Electrolytic Tin Plate - Coke Tin Plate - Rods - Wire - Nails - Tie Plates and Spikes - Alloy and Yoloy Steels.

6

NOTHING TO SLEEP ON...

...IS SO RESTFUL AS FOAMEX*

That picture at the top isn't so far from the truth. It does feel like effortless floating to sleep or sit on *Foamex*.

This wonderful latex foam cradles your passengers on millions of air-breathing cells.

It molds itself to the body, supports more completely. Yet it's so deeply resilient, it lets muscles and flesh really relax.

Every one of those live *Foamex* cells acts like a little air-valve shock absorber. Every one says "No admittance" to vibration. Each one literally breathes to ventilate the mattress or seat, make it cooler, cleaner, odor-proof and damp-proof.

Every *Foamex* mattress, seat, and back is *one molded piece*, sag-proof, lump-proof — almost wear-proof. Thousands of railroad, plane and bus installations, made years ago, still serve perfectly under tough wartime use.

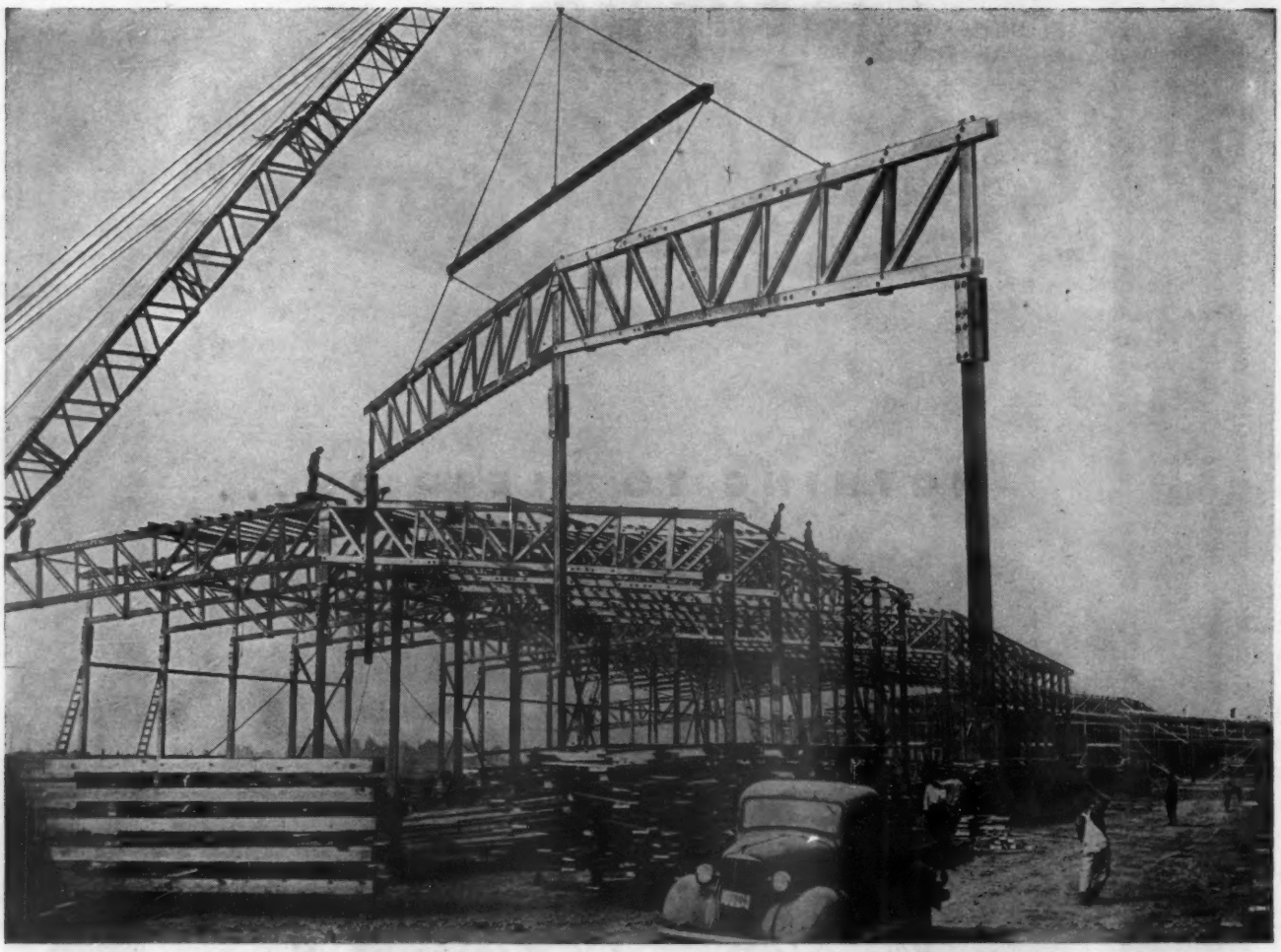
All the *Foamex* being made today is for the war job. When that job is done, and passengers must again be wooed instead of shooed, remember:

NOTHING TO SLEEP OR SIT ON IS SO RESTFUL AS FOAMEX.

*TRADEMARK

ANOTHER CONTRIBUTION TO A BETTER WAY OF LIFE by **Firestone**

LISTEN TO THE VOICE OF FIRESTONE, MONDAY EVENINGS OVER NBC.



★ ★ *ARMY WAREHOUSES with 2,304 flat top roof trusses prefabricated and erected by Timber Structures, Inc. In all, 12 warehouses (200′ x 800′) were erected by a crew of from 50 to 75 men at an average time of 5 days per warehouse.*

ERECTION IS IMPORTANT

...BUILD WITH TIMBER STRUCTURES

The final test of Timber Structures service to railroad engineers and architects is the efficiency with which buildings can be erected. For engine houses, bridges, passenger terminals, freight warehouses, miscellaneous railway structures, every step in production must be coordinated so that erection requires a minimum of time, machinery and manpower. How well this is achieved is illustrated by these typical examples:

1. For an aircraft hangar, an 85′ boom mounted on Caterpillar traction was the only erection equipment needed for putting seven 162′ glued laminated roof trusses in place.
2. A shipyard mold loft 240′ x 130′ was erected in its entirety in four 8-hour shifts.
3. Working hundreds of miles from civilization, a 420′ permanent timber bridge was erected on the Alaska Highway with efficiency and dispatch.

Key erection men are available from Timber Structures if desired. They are thoroughly familiar with erection procedure for all types of buildings.

Erection is but one feature of our "Engineering in Wood" policy. Others are research, design, engineering, prefabrication, inspection, transportation. All are responsible for the construction speed, economy, strength and permanence of roof trusses and other items furnished by us.

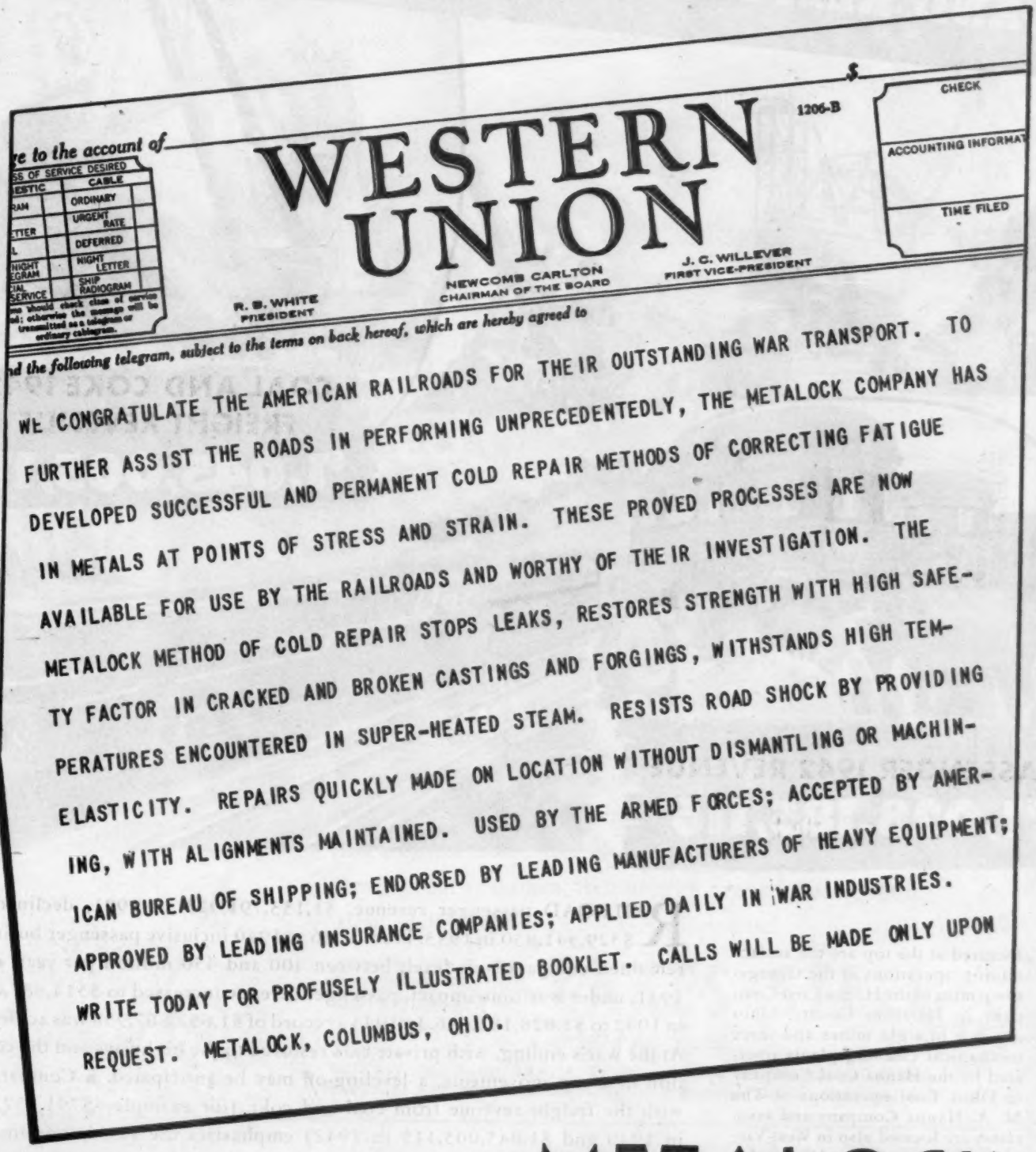
We invite inquiries as to work performed and as to our ability to serve you in timber and allied structural materials. Write for literature.

Engineering in Wood

TIMBER STRUCTURES
WARD MAYER
INCORPORATED

Portland 8, Ore. New York 17, N. Y.

A MESSAGE TO RAILWAY MANAGEMENT



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NIGHT EGRAM		NIGHT LETTER	
IAL SERVICE		SHIP RADIOGRAM	

ne should check class of service ed; otherwise the message will be transmitted as a telegram or ordinary cablegram.

WESTERN UNION

1206-B

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ACCOUNTING INFORMAT

TIME FILED

R. B. WHITE PRESIDENT

NEWCOMB CARLTON CHAIRMAN OF THE BOARD

J. C. WILLEVER FIRST VICE-PRESIDENT

nd the following telegram, subject to the terms on back hereof, which are hereby agreed to

WE CONGRATULATE THE AMERICAN RAILROADS FOR THEIR OUTSTANDING WAR TRANSPORT. TO FURTHER ASSIST THE ROADS IN PERFORMING UNPRECEDENTEDLY, THE METALOCK COMPANY HAS DEVELOPED SUCCESSFUL AND PERMANENT COLD REPAIR METHODS OF CORRECTING FATIGUE IN METALS AT POINTS OF STRESS AND STRAIN. THESE PROVED PROCESSES ARE NOW AVAILABLE FOR USE BY THE RAILROADS AND WORTHY OF THEIR INVESTIGATION. THE METALOCK METHOD OF COLD REPAIR STOPS LEAKS, RESTORES STRENGTH WITH HIGH SAFE-TY FACTOR IN CRACKED AND BROKEN CASTINGS AND FORGINGS, WITHSTANDS HIGH TEM-PERATURES ENCOUNTERED IN SUPER-HEATED STEAM. RESISTS ROAD SHOCK BY PROVIDING ELASTICITY. REPAIRS QUICKLY MADE ON LOCATION WITHOUT DISMANTLING OR MACHIN-ING, WITH ALIGNMENTS MAINTAINED. USED BY THE ARMED FORCES; ACCEPTED BY AMER-ICAN BUREAU OF SHIPPING; ENDORSED BY LEADING MANUFACTURERS OF HEAVY EQUIPMENT; APPROVED BY LEADING INSURANCE COMPANIES; APPLIED DAILY IN WAR INDUSTRIES. WRITE TODAY FOR PROFUSELY ILLUSTRATED BOOKLET. CALLS WILL BE MADE ONLY UPON REQUEST. METALOCK, COLUMBUS, OHIO.

Metalock Advertising Appears in Leading Railway and Industrial Publications.

METALOCK

CASTING REPAIR SERVICE

BOX 215 — COLUMBUS, OHIO

MORE THAN ANYTHING ELSE
Coal BUILT THE RAILROADS
AND KEEPS THEM RUNNING

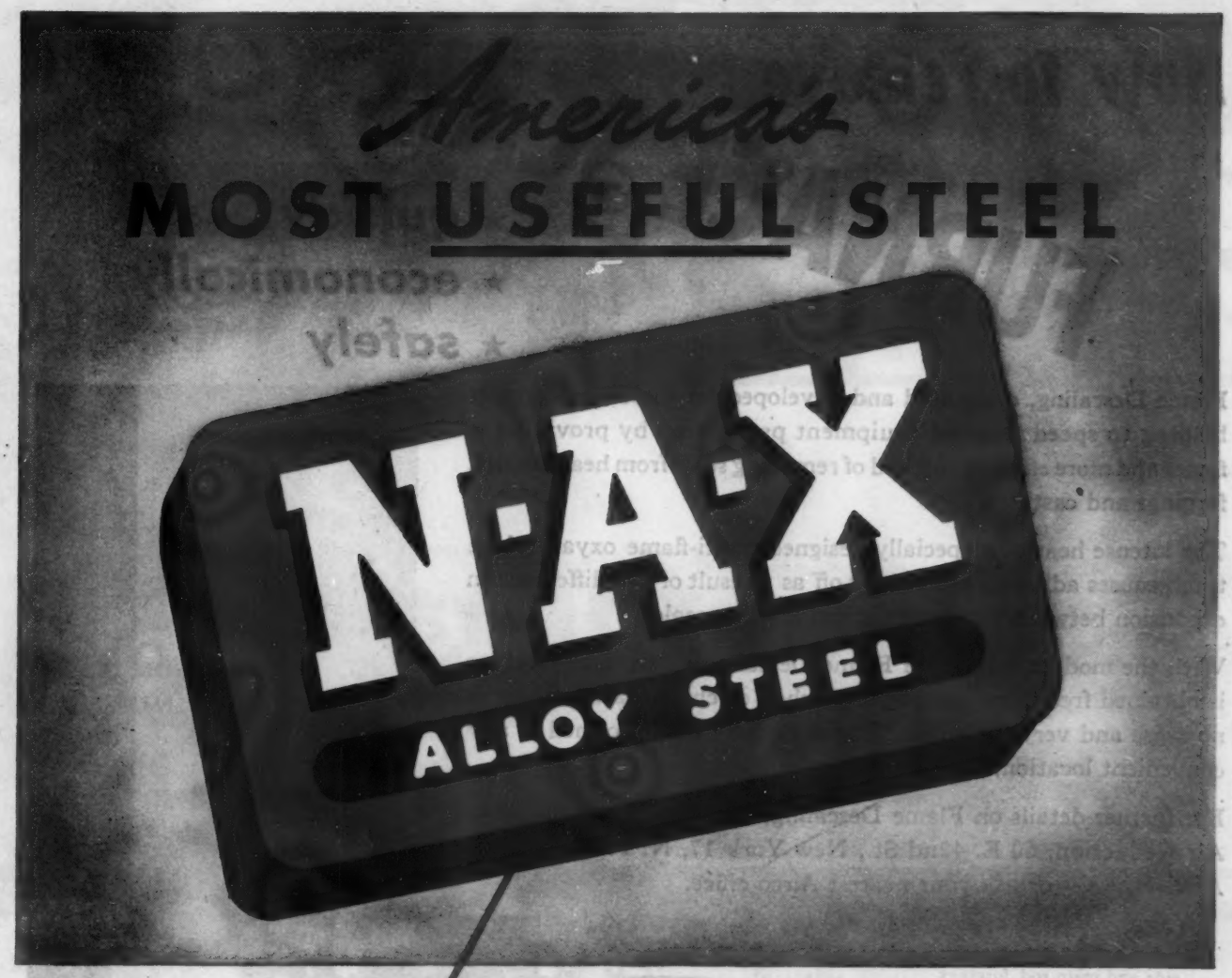
Pictured at the top are the surface mining operations at the Georgetown mine of the Hanna Coal Company in Harrison County, Ohio . . . one of eight mines and three mechanical cleaning plants operated by the Hanna Coal Company in Ohio. Coal operations of The M. A. Hanna Company and associates are located also in West Virginia, Pennsylvania, and Kentucky.

RAILROAD passenger revenue, $1,153,791,925 in 1921, declined to $329,341,830 in 1933. From 1936 to 1940 inclusive passenger business remained comparatively level; between 400 and 450 million per year. • In 1941, under war-time impact, passenger revenue increased to $514,687,032; in 1942 to $1,028,185,616. In 1943 a record of $1,652,867,958 was achieved. At the war's ending, with private cars restored to the highways and the cessation of troop movements, a leveling-off may be anticipated. • Comparison with the freight revenue from coal and coke (for example—$791,537,208 in 1940 and $1,045,005,115 in 1942) emphasizes the vast importance of coal as a principal source of railroad income. What promotes the interest of one advances that of the other.

THE HANNA CO.

The M. A. Hanna Company

★ 1300 LEADER BUILDING • CLEVELAND 14, OHIO ★



A low-alloy steel with an extremely wide range of applications, produced in *high-tensile* grades and in *carburizing* and *constructional* grades. Vastly stronger and tougher than carbon steels—more economical and more easily fabricated than high-alloy steels. Tomorrow's great products, like today's great fighting equipment, will be made of N-A-X alloy steel.

GREAT LAKES STEEL
Corporation

DETROIT 18, MICHIGAN • SALES OFFICES IN PRINCIPAL CITIES
Division of NATIONAL STEEL CORPORATION • Executive Offices, Pittsburgh, Pa.

A GREAT STEEL FROM GREAT LAKES

N-A-X ALLOY STEEL IS USED IN: amphibian tanks . . . tanks and tank destroyers . . . jeeps, trucks and personnel cars . . . tractors, tank retrievers and other heavy equipment . . . fighter and bomber aircraft of all types . . . Navy ships, from PTs to battleships . . . gun mounts and carriages . . . landing craft . . . miscellaneous weapons and equipment.

How to remove FURNACE SCALE

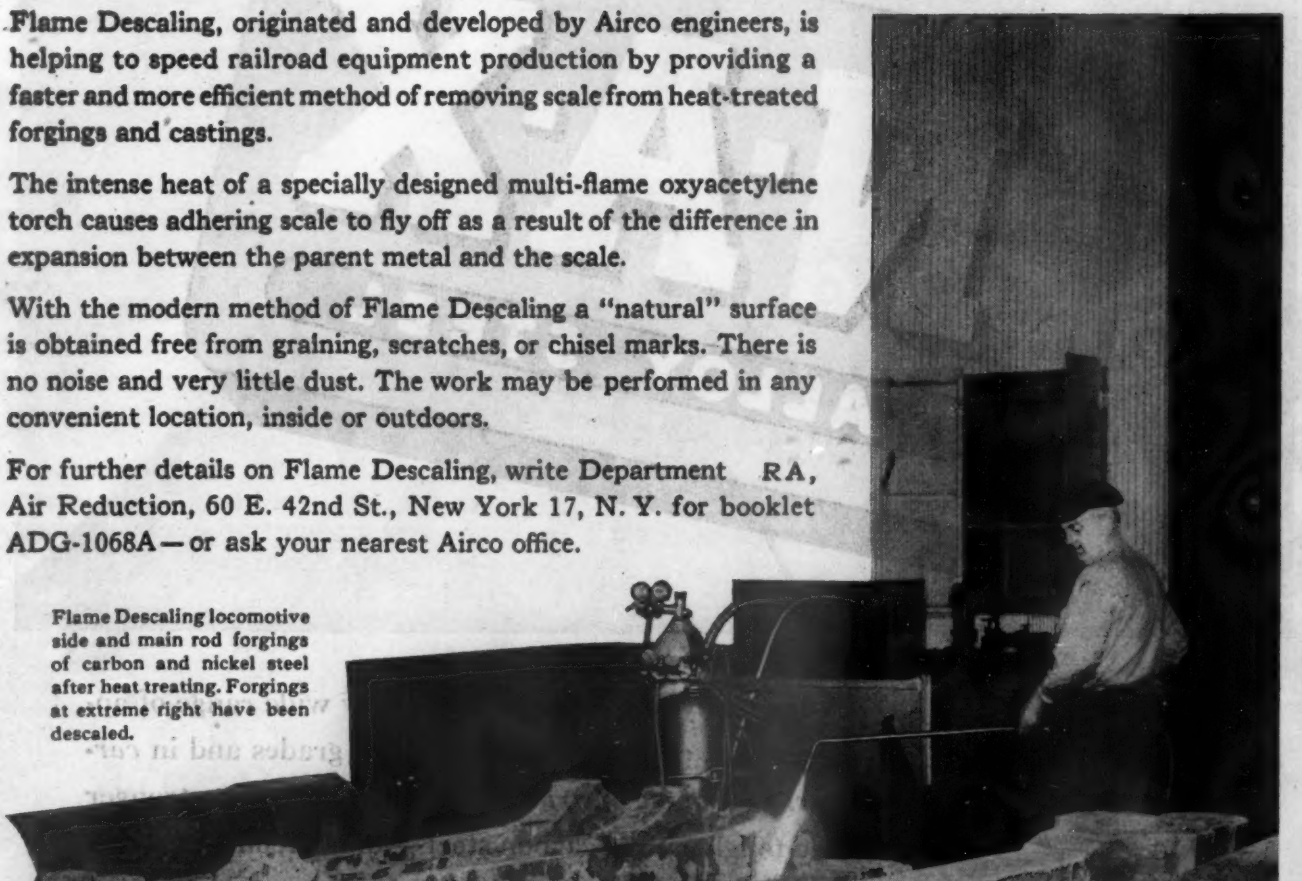
★ quickly
★ economically
★ safely

Flame Descaling, originated and developed by Airco engineers, is helping to speed railroad equipment production by providing a faster and more efficient method of removing scale from heat-treated forgings and castings.

The intense heat of a specially designed multi-flame oxyacetylene torch causes adhering scale to fly off as a result of the difference in expansion between the parent metal and the scale.

With the modern method of Flame Descaling a "natural" surface is obtained free from graining, scratches, or chisel marks. There is no noise and very little dust. The work may be performed in any convenient location, inside or outdoors.

For further details on Flame Descaling, write Department RA, Air Reduction, 60 E. 42nd St., New York 17, N. Y. for booklet ADG-1068A—or ask your nearest Airco office.



Flame Descaling locomotive side and main rod forgings of carbon and nickel steel after heat treating. Forgings at extreme right have been descaled.

BUY MORE WAR BONDS

AIRCO

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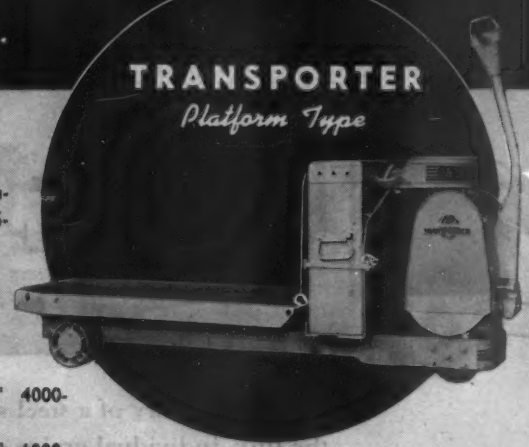

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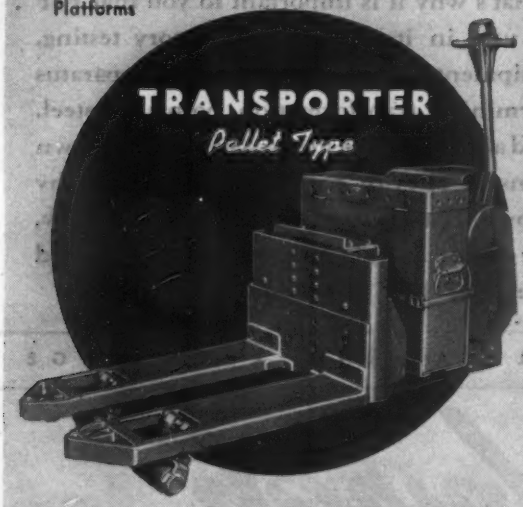

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Railway Age

With which are incorporated the Railway Review, the Railroad Gazette and the Railway Age-Gazette. Name registered in U. S. Patent Office.

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Describing a project involving five junctions, 5 miles of double track and 6.5 miles of single track which is now providing greater flexibility of operation on this Minnesota carrier.

Scholarly Inquiry Merits a Welcome ***550***

When scholars disseminate misinformation they injure themselves, as well as the railroads and the public. Ralph Budd, president of the Burlington, herein suggests some practical pointers on how to minimize scholarly misunderstanding of industry.

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★

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THROUGH its inherent ability to provide increased track capacity quickly and to expedite traffic with safety, Centralized Traffic Control has earned marked recognition as the most efficient system for directing train movements. Since Pearl Harbor, the total number of road miles of C.T.C. has practically doubled. In 1943 alone, over one thousand miles were placed in service in strategic territories. Approximately two-thirds of this mileage is controlled by "Union" C.T.C. machines. On many of these installations, track capacity has been doubled and freight trains are saving more than a-minute-a-mile! Investigate its possibilities now!

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The Week at a Glance

MORE BUYING = MORE JOBS: That certain planners of the post-war economy who either are poorly informed or deliberately biased have fallen into parallel ruts, one of under-emphasis on the importance to that economy of a sustained large volume of business buying of durable goods and the other of over-emphasis on the effect thereon of high consumer buying power (based on high wages), is pointed out in this week's leading editorial. Because the volume of durable goods buying by business fluctuates widely—reflecting the profits, or prospect of profits, that business enjoys—while consumer buying, relatively less capable of being put off, normally maintains a far steadier pace, it follows that the ability of the durable goods industries to provide maximum employment must fluctuate likewise. Thus, the success with which these important employers are able, after war needs slacken, to keep employment at a high pitch will be determined largely by the extent to which business—including the railroads—will then be encouraged by conditions to apply accumulated buying power to the maintenance, improvement, and enlargement of fixed plant and equipment.

●

REJUVENIZED ALTON LOCOS: Ten light Pacifics have had their draw-bar horsepower advanced 27 per cent and their unit fuel consumption reduced about 24 per cent by modifications which are described in an illustrated article in this issue. These engines, originally designed to haul 7 passenger cars on an 8-hour schedule between St. Louis and Chicago, are now pulling 14 cars on a timing of 5 hours 50 minutes.

●

WORLD "DEBACLE" A MIRACLE: How completely intolerable would be the situation for shippers as well as the railroads, if the secretive methods of rate-making insisted on by the Justice Department were to supplant the present statutory system of I. C. C. regulation, was emphasized by R. V. Fletcher in an address this week to the Atlantic Shippers' Board, reported in the news pages in this issue. The attorney-general and his young lawyers have, it seems, discovered that co-operation and good will—among railroads and between railroads and shippers—are the principal reason why the railroads have produced a "miracle" of transportation service to the war effort; and such a performance by private enterprise doesn't gee with their social objectives.

●

POLITICS IN TRANSPORT: Erie's President Woodruff, in addressing the Great Lakes Shippers' Board (reported in the news pages herein) warned against vast extensions to transport plant, paid for by taxation instead of by the users—the immediate beneficiaries. He also questioned the wisdom of political interference with railroad efficiency by "train limit" and other such restrictive measures. It takes efficient railroading—heavy trains—to produce the earnings necessary to support generous wage rates. Little trains, little wages. The transportation industry—and its employees and customers as well—will prosper to the extent that the resourcefulness of individuals is unimpaired either by political impediments or by the temptation to seek assistance from politics.

●

R.R. UNIONS FOR F. D. R.?: George Harrison of the clerks' organization, D. B. Robertson of the firemen, E. E. Milliman of the maintenance of way union, Harry Fraser of the conductors and H. M. Brown of the machinists were reported as White House callers on Wednesday this week. Following an interview with the President, George Harrison said the group had pledged its support to the fourth-term effort and that increased wages had been discussed.

●

NET SLUMPS FURTHER: The prolonged downward tendency of railroad net income was again exhibited in August, as disclosed in Bureau of Railway Economics figures reported this week in the news pages, this being the fifteenth month in which this decline has continued without interruption. For the year's first eight months Class I roads had a net of about $451 million—a very substantial drop from last year's $612 million plus in the same period. Translating the significance of these figures into action, the carriers went to the I. C. C. on October 5 with a plea for restoration of the freight rate increases in Ex Parte 148, which have been under suspension since May, 1943.

●

MAKING OLD STEEL DO: When the S. P. found itself badly in need of an additional heavy locomotive erecting shop on its war traffic-burdened Northern district, there were other important customers waiting for all the new steel there was to be had, so, as has often been the case since Pearl Harbor, it was up to the engineering staff to get along with material that could be found on the property. Some of the expedients they employed in adapting the frame of a dismantled Texas shop to the requirements of the new structure in Nevada are described in a feature article.

●

C. T. C. A STOP SAVER: While every railroad naturally is vitally interested in minimizing train stops, this is a particularly important consideration under the special operating conditions prevailing on the lines serving the Minnesota iron ore ranges. Faced with the job of keeping 180-car, 9,000-gross ton trains moving from the mines down to the Lake Superior docks while equally touchy trains of empties are kept going in the reverse direction, the D. M. & I. R. has found in C. T. C. a means of increasing track capacity, speeding train movements, and obtaining greater safety for equipment and employees in a 11.5-mile segment of railroad that includes five junctions and 6.5 miles of single track. Even with W. P. B.-dictated modifications, the installation—details of which are explained in an article on page 543—has made it possible to achieve these results through reducing profit-consuming stops in territory handling 90 or more trains daily.

THE HELP PROBLEM: At the same time that the Railroad Retirement Board reports a further improvement as of September first in the overall manpower situation of the carriers, their personnel needs on that date being estimated at 91,000, as against 94,000 a month earlier and 107,000 at the same time last year, word comes from the O.D.T. that the supply of skilled men, especially switchmen, brakemen and firemen, is critically short on the Pacific coast, threatening the prompt and orderly handling of essential freight through the San Francisco Bay terminals. Still another phase of the personnel picture was brought out by the latest I.C.C. figures on the employment of women in railroad work. The total now reported is 116,425, or 8.07 per cent of all employees. Other significant facts and figures on these angles of the current manpower situation appear in the news pages.

●

POOR PUBLICITY IN BOOKS: Treatises and text-books on history (and in the other social sciences as well) do not, as a rule, give the railroads a very good "break" in publicizing their behavior—and misinformation in such books is probably just as injurious to the railroads as a hostile press would be. Scholars themselves are becoming aware of the inadequacy of their interpretation of the railroads and (as set forth in detail in a *Railway Age* article, February 26, page 416) are seeking means of correcting the deficiency. How they may do so, and how the railroads can and should help them, is discussed from a practical managerial point of view in an address by Ralph Budd, reported in a feature article in this issue; while other aspects of the problem are analyzed in an editorial.

●

WESTINGHOUSE RESEARCH: An editorial this week highlights the story of the evolution of the train air brake through the 75 years it has been meeting the increasingly severe demands of railroad operations. The story is peculiarly timely just now because it so convincingly illustrates how organized engineering research in the railroad field over many years has quietly been producing technological improvements of practical value, and thus deflates certain widely broadcast assertions (perhaps not wholly disassociated from political considerations) to the effect that the railroad industry and research have never even been on speaking terms.

●

VETERAN REEMPLOYMENT: Another significant report has come from the A. A. R.-sponsored Railroad Committee for the Study of Transportation, this one dealing with policies and methods by which railroad managements may, with the least possible disturbing effect, meet their legal and moral obligations to those former employees who, on returning from military service to civilian life, will wish to take up their old jobs. Favorable and unfavorable factors in this prospect are analyzed, some ticklish legal questions are raised, and specific procedures for handling the situation are set forth.

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GENERAL MOTORS LOCOMOTIVES

BUY MORE WAR BONDS ★

ELECTRO-MOTIVE DIVISION

GENERAL MOTORS CORPORATION LA GRANGE, ILLINOIS, U.S.A.

Business Buying and Employment

Whether there will be enough employment in this country in the post-war period will be determined by the amount of buying of durable goods done by *business* for the maintenance, improvement and expansion of its plant.

The buying done by business for these purposes is always smaller than the buying done by the consuming public. Hence, the importance of maintaining high wages as a means of maintaining high consumer buying power is exaggerated by those who do not know economic facts or who disregard them in the supposed interest of the working class. The volume of buying of durable goods by business so largely determines the total amount of employment because it fluctuates so much more widely than consumer buying. And it fluctuates more widely because most consumer buying cannot be postponed, while most business buying of durable goods can be postponed. Business buying of durable goods is large when the current and prospective profits of business are large. It is sharply reduced when the current and prospective profits of business decline. And when business buying declines, total employment declines. It is essential to adequate employment that both consumer and business buying be large.

Railway Wages and Purchases of Equipment and Materials

	Total railway wages	Purchases included in capital expenditures	Purchases included in operating expenses	Total purchases equipment and materials	Purchases per cent of total wages
	$(millions)	$ (000)	$ (000)	$ (000)	
1923	3,004	840,315	1,120,903	1,961,218	
1924	2,826	673,587	871,399	1,544,986	
1925	2,861	533,434	932,578	1,466,012	
1926	2,946	656,601	1,085,678	1,742,279	
1927	2,910	551,906	957,107	1,509,013	
5-yr. Avg.	$ 2,909	$ 651,169	$ 993,535	$1,644,702	56.5
1928	2,826	480,083	886,733	1,366,816	
1929	2,897	631,240	965,143	1,596,383	
1930	2,551	688,414	732,000	1,420,414	
1931	2,095	232,344	450,500	682,844	
1932	1,513	91,220	266,750	357,970	
5-yr. Avg.	$ 2,376	$ 424,660	$ 660,225	$1,084,885	45.7
1933	1,404	36,320	285,324	321,644	
1934	1,519	135,282	382,930	518,212	
1935	1,644	98,669	360,302	458,971	
1936	1,849	188,381	531,151	719,532	
1937	1,985	389,738	672,090	1,061,828	
5-yr. Avg.	$ 1,680	$ 169,678	$ 446,359	$ 616,037	36.7
1938	1,746	141,026	339,499	480,525	
1939	1,863	160,910	512,041	672,950	
1940	1,964	320,741	580,907	901,648	
1941	2,332	409,485	811,509	1,220,994	
1942	2,932	369,840	833,476	1,203,316	
5-yr. Avg.	$ 2,167	$ 280,400	$ 615,486	$ 895,887	41.3
1943	3,305	317,395*	866,985	1,184,380	35.8

* Est.

These economic facts can be illustrated and demonstrated by experience in any industry during the last two decades, and are made especially clear by experience in the railroad industry. The railroads, like any other industry, do not provide employment only for those on their own payroll. They also indirectly provide employment in the industries from which they buy fuel, equipment and material. The amount of fuel they buy, and the employment that they thus indirectly provide, are determined entirely by current operating needs. Their buying of equipment and materials, and the employment they provide in this way, fluctuate much more widely because they are determined by current and prospective net earnings.

Efficiency FOR VICTORY

All railway purchases of equipment, and also of materials used in expansion and improvements, are included in "capital expenditures"; all materials purchased for maintenance, in operating expenses. Statistics given in the accompanying table show (1) the amount of wages paid by the railways to their own employees in each of the last twenty-one years, and the average amount paid annually in four five-year periods. They also show by years and periods (2) the purchases of equipment and materials included in capital expenditures, (3) the purchases of materials included in operating expenses, and (4) the total purchases of equipment and materials made.

During the twenty-one years 1923-1943, inclusive, wages paid by the railways averaged $2,332 million annually, and purchases of equipment and materials $1,066 million annually, or almost half as much as wages. Plainly, therefore, railway purchases for improvements, expansion and maintenance of plant, as well as railway wages, contributed substantially to the nation's total employment, and thereby to consumer purchasing power. But, as the statistics clearly show, railway purchases, and the employment afforded by them have fluctuated much more than the wages paid by the railways to their own employees. In the eight years 1923-1930, inclusive, total railway wages averaged $2,852 million annually and purchases of equipment and materials averaged $1,576 million. In the eight years 1931-1938, inclusive, railway wages averaged $1,719 million annually, while purchases of equipment and materials averaged only $575 million annually. The decline in average annual purchases of $1,000 million, or 64 per cent, almost equaled the decline of $1,133 million, or 40 per cent, in average annual wages, and had corresponding effects on consumer purchasing power.

And while the railway payroll has recovered during the war, railway purchases have not. Total railway wages of $3,305 million in 1943 were the largest in history, and $453 million more than they averaged annually in 1923-1930, inclusive. Total railway purchases of $1,184 million in 1943 were $609 million more than they averaged in 1931-1938, inclusive, but still $392 million less than they averaged in 1923-1930, inclusive.

If railway buying is to contribute as much toward employment during the period following World War II as it did during the period following World War I, it will have to be increased to and maintained on a higher level than in the period following World War I. The railways will need to buy more than they did in the period following World War I. And, largely by severely restricting their dividends during the present war, they have accumulated large funds which they can use for remedying deferred maintenance and for expansion and improvements. But, as during the last two decades, the purchases made by them for these purposes will be determined principally by their current and prospective net operating income—i.e., the difference between gross earnings, on the one hand, and operating expenses and taxes, on the other.

Railway gross earnings in the first seven months of 1944 were $1,819 million more than in the first seven months of 1929, in spite of lower rates; but because of the increase of $964 million in operating expenses, mainly due to advances in wages, and to a huge increase in taxes, net operating income was less than in 1929. Doubtless taxes will be reduced. Whether, and how much, gross earnings will decline will depend on general business and competition in transportation. But, plainly, operating expenses, and especially labor costs, will have to be strictly controlled if the railways are to have the buying power which they will need to rehabilitate and improve their properties and to contribute their share toward the nation's total employment.

The Air Brake's Diamond Anniversary

The year 1944 marks the seventy-fifth anniversary of one of the basic inventions of railway transportation —the air brake. George Westinghouse's invention of the straight air brake in 1869, followed by the automatic air brake three years later, provided the railroads with a sound medium for train control, inherent in which was the flexibility needed for the many improvements and developments to meet demands which have been increasing in severity throughout the seventy-five years.

Today, the brake, operated by compressed air without other means of control, adequately serves a large part of the traffic moving on the steam railroads of America and, indeed, on those in many other parts of the world. It will be recalled that when the UC passenger brake was brought out in 1913 it was designed with provision for the inclusion of electro-pneumatic features, but that the unassisted pneumatic performance was such that the electric control features were never used. Only within the last ten years, with the advent of the high-speed streamline train, has compressed air as the medium of power transmission and control been supplemented, in the HSC brake, with electric control features which produce instantaneous responses to control impulses on all vehicles of a train similar to those long a feature of New York subway operation.

Mr. Westinghouse organized a company to develop and promote the use of his invention within a few weeks of the successful trial of the straight air brake. That company, the present Westinghouse Air Brake Company, passed its seventy-fifth birthday on September 28. In its hands the simple devices which the inventor conceived in 1869 have evolved through a number of steps to the complex arrangement of parts, passages, and valves, the orderly operation of which provides a list of functions which, were he alive today, would no doubt cause Mr. Westinghouse, himself, some amazement.

Broadly considered, there have been two phases of this development. First, the progress in the art of braking was largely influenced by the work of two geniuses—Mr. Westinghouse, who is said to have averaged a new patent every six weeks over a period of forty-eight years, and Walter V. Turner, whose name

is on over 400 United States patents of electric, mechanical, and pneumatic inventions. Mr. Turner exerted a leading influence on the development of the air brake in America from the time he became connected with the Westinghouse Air Brake Company in 1903 until his death in 1919. The second phase was that in which the progress in the art has been more the result of well-organized and coordinated efforts of engineering research and design to meet the expanding list of functions demanded of train-brake equipment than of the genius of single individuals.

Further tribute to the soundness of Mr. Westinghouse's decision when he chose compressed air as the medium for transmission of braking power and control is the adaptation of the principles involved in this system to the direct control of the movements of a ship from the bridge, thereby eliminating the time required for the transmission of signals from the bridge to the engine room, which is said to have reduced the lag between the first action on the bridge and the complete response by 90 per cent. This Westinghouse development has proved of great value during the present war and has been installed on many destroyers, patrol, and coast-guard vessels.

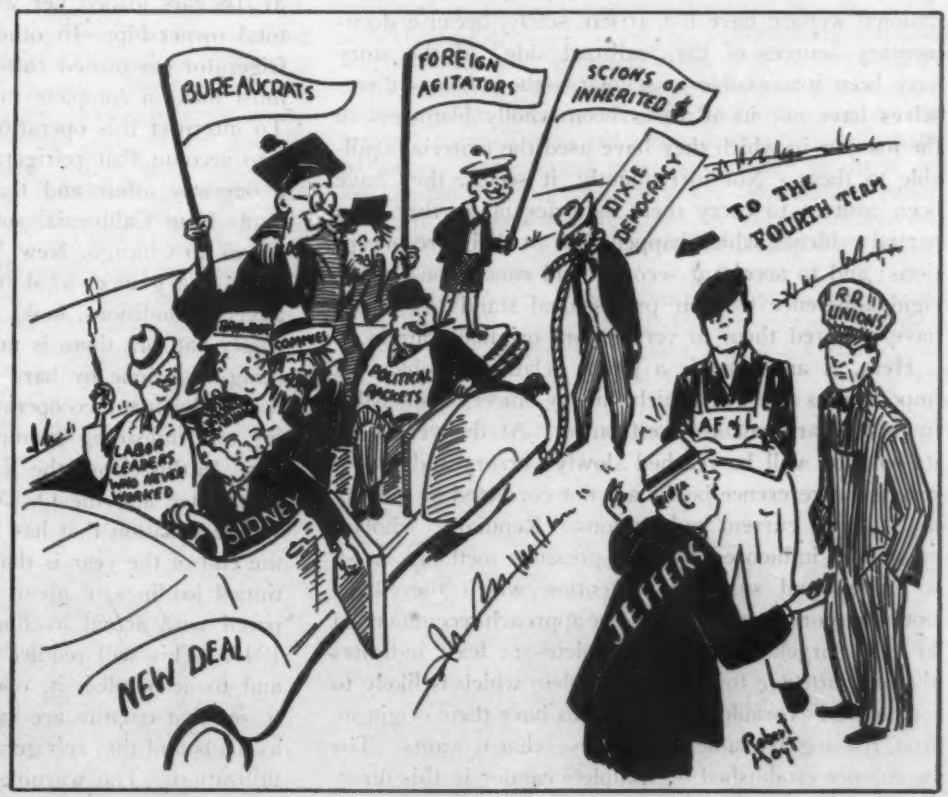
As an industrial corporation, the Westinghouse Air Brake Company takes its place in the relatively small group of those which have had an unbroken corporate existence of as much as three-quarters of a century and in which, throughout its organization, a consciousness of the inheritance which the present has received from the past can still be felt. In the relations between the company and its employees this heritage stems from the spirit of fairness and liberality which chacterized both George Westinghouse and his brother, Herman, in their management of the affairs of the company, and the sense of unity, even under the generally disturbed employment situation today in which the initiative of management in matters affecting employee relations has been greatly curtailed, has not been completely lost. The service records of 1,130 present employees are said to go back twenty-one years or more, and those ot another 1,000 more than ten years.

The railroads are an old industry. The air brake is one of the great improvements which was made relatively early in railway history. There are probably few products of industry in the United States of comparative age in the development of which more ingenuity and painstaking engineering research have been expended. Like the railroads, old as they are, the art of train braking is still in a state of change and development which belies the thought that its seventy-five years have anything to do with old age.

Poor Publicity in Scholarly Treatises

Imperfect understanding and consequent misinterpretation by social scientists—historians, economists, students of government, sociologists—of the contribution of the railroads to national economic well-being is probably the major force leading to the continuance of a political environment in which it is difficult for the carriers to look ahead to reasonable prosperity and satisfactory public service under an enduring system of undiluted private enterprise. Another negative factor—the enmity of competing, semi-socialized transportation agencies and the fatuous support which such

Will America's Unionists Hearken to an Old Friend or Go for a Ride with Sidney?



W. M. Jeffers: "I was a union man before the un-American element now dominating segments of American labor was born. No Political Action Committee is going to tell me or any upheaded American how he is going to vote."

socialism obtains from many organized business interests—may be considered by some to be of more importance. The railroads could not, however, be successfully misrepresented by their enemies if the authors of histories and text-books did not misguidedly write or omit to write things about the railroads, contradictory to scholarly regard for the significant facts.

Dr. Stanley Pargellis of the Newberry Library some months ago exposed the extent of this scholarly misinterpretation, its causes and its effects, in a memorable address to the Newcomen Society at Chicago—a condensation of his presentation appearing in *Railway Age* of February 26, page 416. Since the subject was thus opened to discussion, a great and growing effort on the part both of railroad men and conscientious scholars has been put forth further to expose the ramifications of this focal infection and, if possible, to hit upon means for its eradication. President Ralph Budd of the Burlington offered some practical advice on the question on September 29 in an address to the Economic History Association, reported in an article in this issue.

The principal remedial action recommended by Dr. Pargellis was that the railroads be more hospitable to scholars—economic historians especially—in their efforts to study basic documents relating to railroad performance. Exploration of the facts convinces us, as we have stated heretofore (July 22 issue, page 146), that such action by the railroads would be only a partial solution to the difficulty. Inaccuracy and inadequacy in the treatment in standard works of reference and instruction of railroad contributions to the national welfare have not arisen, solely, because documentary sources of the "railroad side" of the story have been inaccessible to scholars—the scholars themselves have not in all cases been wholly blameless in the manner in which they have used the material available to them. Not infrequently, it seems, they have been content to carry their inquiries no further than partial evidence which happened to fit their preconceptions; and to accept at second hand conclusions which rigid adherence to their professional standards would have required them to verify from original sources.

Here, at any rate, is a public relations problem as important as any with which railway officers responsible in this department are confronted. At the very best, its solution will be reached slowly—errors and inadequacies in reference books are not corrected as quickly as those in current publications. Reputable scholars cannot be influenced by high-pressure methods or by a sudden and suspicious attention which they have not heretofore commanded. The approach recommended by Dr. Pargellis—while incomplete—at least indicates the only *attitude* toward the problem which is likely to succeed. Favorable press relations have their origin in, first, making available to the press what it wants. The confidence established by complete candor in this direction usually leads, in time, to a willingness of the recipient to accept interpretive suggestions from a source of information whose dependability has been proven. Although academic scholars are, usually, a type of individual somewhat different from reporters, frankness and hospitality to their curiosity are probably no less a primary requisite in favorable relations with them than is the case with the press.

Keep "Freezers" Rolling

The hearty appetites of the boys in training in this country, as well as increased civilian consumption, have kept the refrigerator cars rolling on the railways at an unprecedented rate. The figures in this connection depict an interesting situation of increased demand for and dwindling supply of refrigerator cars.

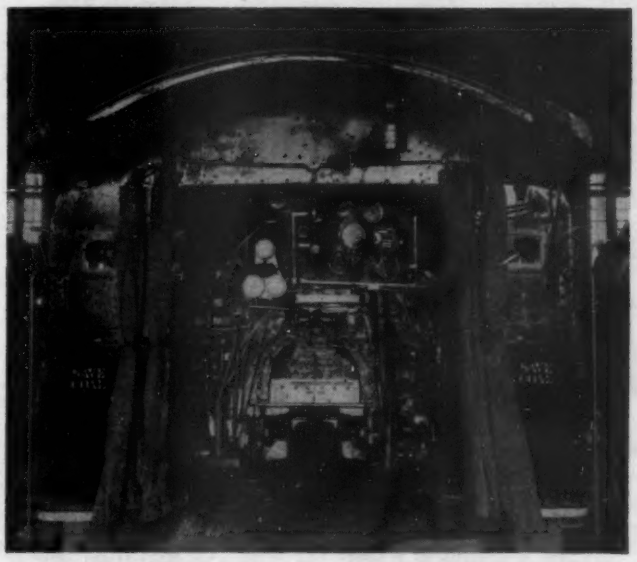
Refrigerator car loadings for 1941 were 4.5 per cent in excess of 1940. In 1942, they went up a further 10.9 per cent. The increase flattened out a bit in 1943, when it was only 2.4 per cent, but, as indicated later, the percentage of increase in 1944 is greater than ever and loadings will continue at that rate for the rest of this year. Meanwhile, the increases in loadings were paralleled—in the opposite direction—by decreases in refrigerator car ownership. This declined from 143,078 cars on January 1, 1942, to 141,867 cars on the same date in 1943, and to 140,195 cars on January 1, 1944, or a loss of 2,883 cars in the two-year period.

In the first eight months of this year, 1,078,086 refrigerator cars were loaded, an increase of 107,300 cars, or 11 per cent, over the 970,786 such cars loaded in the comparable period of 1943. This means an average of 31,708 cars loaded per week, or 22½ per cent of the total ownership. In other words, in effect, each refrigerator car owned (after bad orders are eliminated) must make a complete turn-around every four weeks. To interpret this operation properly, it must be taken into account that refrigerator traffic is almost entirely a one-way affair and that many of the trips involve hauls from California, southern Florida and southern Texas to Chicago, New York and New England.

At first glance, what has already been done, under adverse conditions, looks like pulling rabbits out of an empty hat, but there is no legerdemain involved. The thing was done by hard and effective work, constant watchfulness and co-operation from the shippers in loading and unloading promptly and in loading more per car. In this effort, the National Refrigerator Advisory Committee and the O. D. T. have been most helpful.

The situation that has to be faced between now and the end of the year is that all indications point to continued loadings of about 32,000 cars weekly, as compared with actual loadings of 28,552 cars weekly in 1943. This will require a quick turn-around of cars, and to accomplish it, operating officers must be alert to see that empties are handled with the same dispatch as loads and that refrigerator cars are given the utmost utilization. The warning sounded by Col. J. Monroe Johnson of the O. D. T. a few days ago must also be heeded by shippers and receivers, as the job is one that requires co-operation.

Good Results with Modernized Alton Locomotives



Back Boiler Head of Modernized Alton Locomotive No. 5293

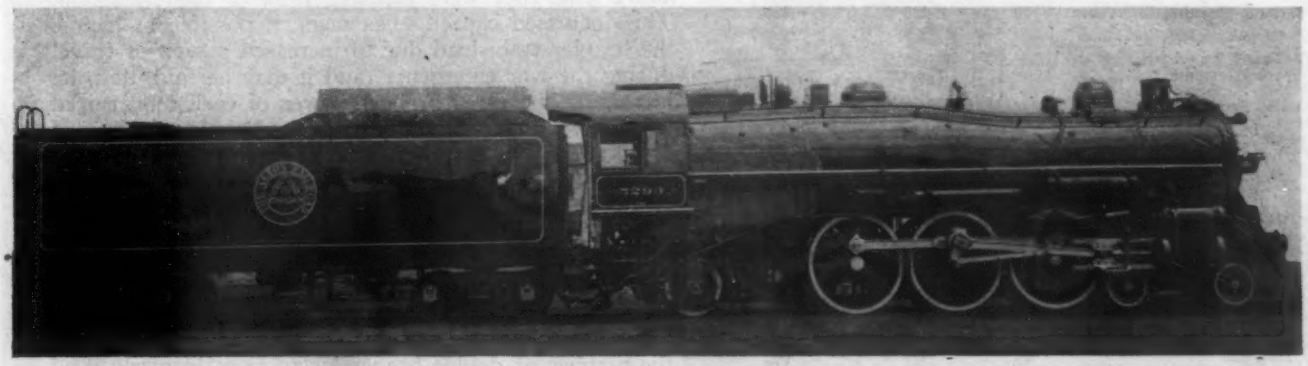
Light Pacific-type steam locomotives equipped with modern devices handle three more cars per train

THE Alton has recently completed a program of improving ten light Pacific-type steam locomotives which enables this power to make a real contribution in the present emergency to passenger-train handling on this road. Tests indicate that, as a result of increasing the tender size and installing more efficient modern equipment and appliances on these locomotives, the drawbar horsepower has been increased 27.2 per cent and the unit fuel consumption decreased 23.6 per cent. The locomotives are regularly handling three more passenger cars per train than formerly and without any double heading on the fast schedule between Chicago and St. Louis, Mo.

These locomotives, originally purchased from the American Locomotive Company in 1914, were equipped with tenders having a capacity for 10,000 gal. of water and 14 tons of coal and used to haul seven heavy conventional passenger cars on an 8-hr. schedule for the 282-mile daily run between Chicago and St. Louis. In 1939, the need for longer runs between fuel and water stops became so pressing that the tenders were lengthened about 5 ft., increasing the capacity to 13,650 gal. of water and 19 tons of coal. The locomotives were also equipped with Standard stokers and Hulson Tuyere-type grates; the boiler pressure was raised from 200 to 220 lb.; main steam valves reduced from 15 to 12 in.; and it was found possible to enlarge the exhaust-nozzle tip from 6¼ to 6½ in. At that time, the consist of the Alton trains was increased to 11 cars and the running time shortened to 6½ hr. These trains, however, had to be double-headed over part of the road and in many instances over the entire district between Chicago and St. Louis.

The action of the War Production Board in freezing all orders for passenger power in 1941 upset the program of the Alton to supplement its supply of modern motive power and, with no new locomotives in sight and an urgent need for added power to handle more and heavier passenger trains, it was decided to see what could be accomplished by further improvement of the old steam locomotives. They were accordingly shopped and equipped with Worthington feedwater heaters, Nicholson Thermic syphons, Type HA superheaters and Dearborn automatic foam-meters at an *A* & *B* cost of $6,635 per locomotive. The exhaust nozzle was also again increased ¼ in. in diameter, from 6½ to 6¾ in. As modernized, these 30-year old steam locomotives now handle 14 heavy, conventional cars, an increase of three, with no double heading and a single locomotive running through between Chicago and St. Louis, daily, on a schedule of 5 hr. 50 min., with five intermediate stops in the 282-mile run.

The Pacific-type locomotives referred to in this article were originally called Class P-16 on the Alton, this designation being changed to Class P-16b for those which were improved in 1939 and Class P-16b (modernized) for those further improved in 1943 and 1944. In order to determine definitely what had been accomplished in



The Power Output Was Increased 27 Per Cent by Modernization

connection with the latest improvement program, the management of the Alton arranged to make dynamometer car tests with a Class P-16b locomotive, No. 5291, against a locomotive of the same class, No. 5293, after it had been fully modernized. These dynamometer car tests, completed on April 9, 1944, comprised nine test runs made on Alton Limited trains Nos. 1 and 4 between Chicago and St. Louis.

Results of the test runs are summarized in one of the tables which shows that Locomotive 5293 handled more cars, faster and with less fuel and water after being modernized. For example, the number of pounds of coal per car-mile decreased almost 20 per cent; water evaporation per lb. of coal increased about 11 per cent; drawbar pull increased practically 17 per cent and drawbar horsepower 27.2 per cent; boiler efficiency increased from 52.28 to 60.38 per cent; overall efficiency increased from 3.53 to 4.79; maximum power developed increased from 2,364 to 2,824 hp. These last figures represent the theoretical cylinder horsepower and the tests show that Locomotive 5293 is capable of producing as much horsepower at the drawbar as it formerly developed in the cylinders.

The overall efficiency of Locomotive 5293, 4.79 per cent, is not high even for a modernized steam locomotive, doubtless due to the abnormally heavy trains handled during the test. The test report calls attention to the influence of excessive loads in decreasing locomotive efficiency and states that, with lighter trains, Locomotive 5293 may be expected to show efficiencies up to 6 per cent.

While modernized Class P-16b locomotives are daily hauling 14 cars in the present emergency, 13 cars was the maximum number used on any of the test runs and the dynamometer car tests demonstrated that Locomotive 5293 is readily capable of handling trains of this size. While the heavy load involved in handling trains of 13 or 14 cars with a relatively small steam locomotive may necessitate some sacrifice in fuel economy, if such a train were doubleheaded there would be a much greater fuel consumption by reason of using two locomotives, to say nothing of the increased cost of maintenance for the additional locomotive as well as for wages of the additional crew.

General Summary of the Test Results

Item	(A) No. 5291	(B) No. 5293	Ratio Col. (B) to Col. (A), minus 100, per cent
Number of cars	12	12.6	5.00
Lightweight of train, tons	927.71	987.35	6.44
Running time, hr. min.	5-47.35	5-21.8	—7.93
Average speed running time, m.p.h.	48.88	52.21	3.75
Average boiler pressure, lb.	207	213	2.90
Average steam chest pressure, lb.	187.5	187	—.27
Average exhaust steam pressure, lb.	10.6	11.1	4.80
Average cut-off, per cent	36.1	48.9	35.50
Average steam temperature, deg. F.	592	640	8.10
Average superheat temperature, deg. F.	202	248	22.77
Coal per car-mile, lb.	15.01	12.06	—19.65
Thousand B.t.u. per car-mile	168.0	135.2	—24.30
Coal per drawbar horsepower-hour, lb.	6.27	4.79	—23.60
Thousand B.t.u. per drawbar hp.-hr.	72.58	52.82	—27.20
Coal per sq. ft. grate area per hr., lb.	131.5	111.4	—15.30
Total water evaporated, gals.	27,453	25,719	—6.33
Water per lb. coal, as fired, lb.	4.70	5.22	11.05
Water per lb. of coal (10,500 B.t.u.) lb.	4.39	4.88	11,18
Factor of evaporation	1.282	1.286	.31
Equivalent evaporation	6.02	6.71	11.45
Average drawbar pull, lb.	10,106	11,844	17.15
Average drawbar horsepower	1,308	1,663	27.20
Drawbar horsepower hours	7,574.5	8,876	17.20
Steam per drawbar hp.-hr., lb.	27.03	23.03	—14.80
Boiler efficiency, per cent	52.28	60.38	15.49
Overall efficiency, per cent	3.53	4.79	35.75
Maximum cylinder hp. (milepost 234 southbound)	2,364	....	....
Maximum cylinder hp. (milepost 81 southbound)	....	2,824	....

Principal Dimensions and Characteristics of the Alton Locomotives Before and After Modernization

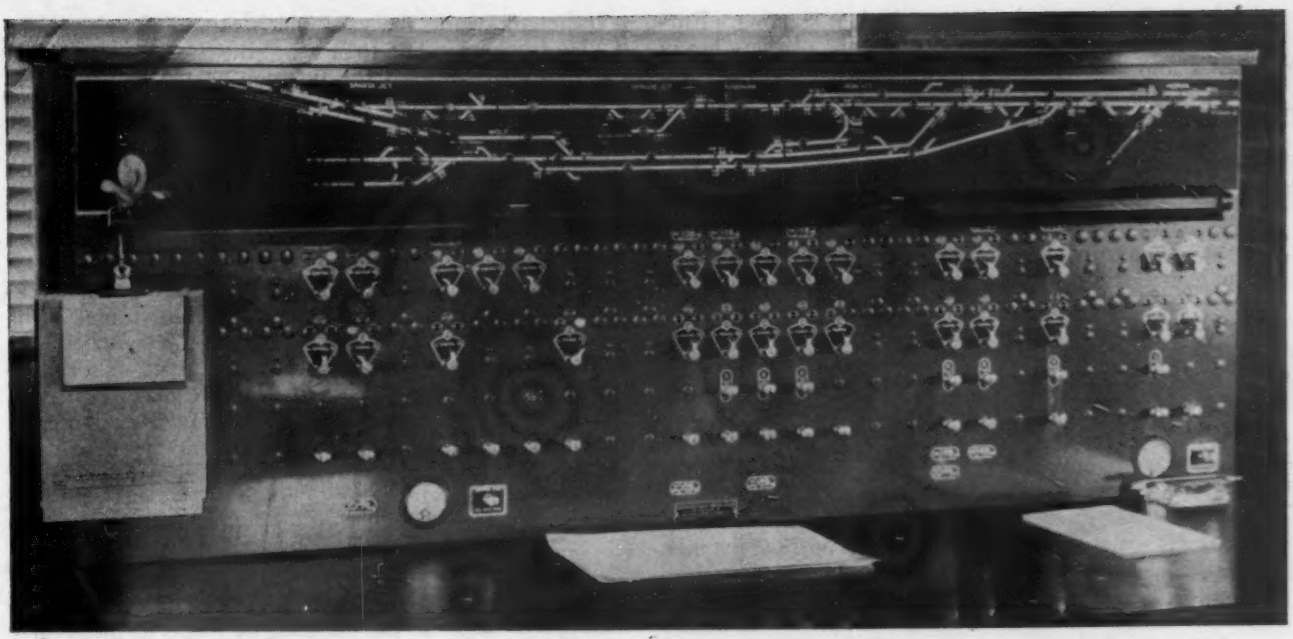
Data	Locomotives as purchased in 1913 Class P-16	Loco. 5291 as improved in 1939 Class P-16b	Loco. 5293 Modernized in 1944 Class P-16b (M)
Type of locomotive	4-6-2	4-6-2	4-6-2
Type of stoker	None	St'd.	St'd.
Engine:			
Cylinders, diam. and stroke, in.	25 x 28	25 x 28	25 x 28
Valve gear type	Walschaert	Walschaert	Walschaert
Valves, diameter, in.	15	12	12
Valve travel, in.	6½	6¼	6¼
Boiler:			
Working pressure, lb.	200	220	220
Grate area, sq. ft. and type	Table 70.4	Hulson-Tuyere 65.4	Hulson-Tuyere 70.4
Feedwater heater or injector	Injector	Injector	Feedwater heater
Superheater units	Type A	Type A	Type HA
Heating surfaces:			
Firebox, sq. ft.	240	240	240
Arch tubes, number and sq. ft.	None	4-32	2-16
Syphons, number and sq. ft.	None	None	2-65
Total evaporating surface, sq. ft.	3,967	3,999	4,048
Wheel base, engine and tender, ft.-in.	70-11	75-10	75-10
Weights in working order, lb.:			
On driving wheels	172,417	179,610	179,610
Total engine	277,350	282,150	282,150
Tender capacity:			
Water, gals.	10,000	13,650	13,650
Coal, lb.	28,000	38,240	38,240
Miscellaneous:			
Exhaust-nozzle tip	6¼ in.	6½ in.	6¼ in.
Foammeter	No	No	Yes
Theoretical potential cylinder horsepower	2,330	2,390	2,830

With respect to the coal consumed, it is indicated from the tests that, where Locomotive 5291 would consume an average of 27 tons of coal under present conditions, the modernized Locomotive 5293 would handle the same train under identical conditions requiring only 20 tons of coal, or a saving of 7 tons per trip. All coal used was carefully weighed and samples analyzed, considerable variation being found. For example, ash content varied from 14 per cent down to 5 per cent; moisture from 12 to 7 per cent; and B.t.u. per lb. from 12,000 to 10,000.

It is believed that the performances of Locomotive 5293 with the dynamometer car demonstrated conclusively that with 10 or 11 cars under normal operating conditions, it will be possible to eliminate one coal stop which, in turn, will produce additional fuel economy. All-in-all the tests showed that modernization of Locomotive 5293 permitted the locomotive to be worked when necessary with a substantially longer cut-off than Locomotive 5291 and still have the locomotive maintain full steam pressure and, of course, develop increased power output. An analysis of the four highest drawbar horsepower ratings for each of the southbound and northbound runs for each locomotive shows an overall average maximum drawbar horsepower of 2,739 for Locomotive 5293 and 2,232 average maximum drawbar horsepower for Locomotive 5291, or an increase of 507 drawbar horsepower.

The modernization of the P-16b class locomotives has resulted in this power being able to maintain an on-time performance when handling an increase of three standard weight cars per train on trains Nos. 1 and 4 over and above what they were handling prior to modernization. This increased capacity has made it possible to handle the heavier train load due to increased passenger travel during the war emergency, and it may be said, that, by increasing the drawbar horsepower of each modernized locomotive, the railroad has acquired the equivalent of 5,070 additional horsepower or approximately two additional locomotives. However, in normal times when only 10 or 11 cars are being handled, it is reasonable to expect an average saving of 6 to 8 tons of coal per trip between Chicago and St. Louis.

The modernization of the ten P-16b class locomotives has resulted in a fuel saving approximating $100,000 annually, and has also resulted in a material reduction in the number of double header locomotives formerly used to handle the increased train loads.



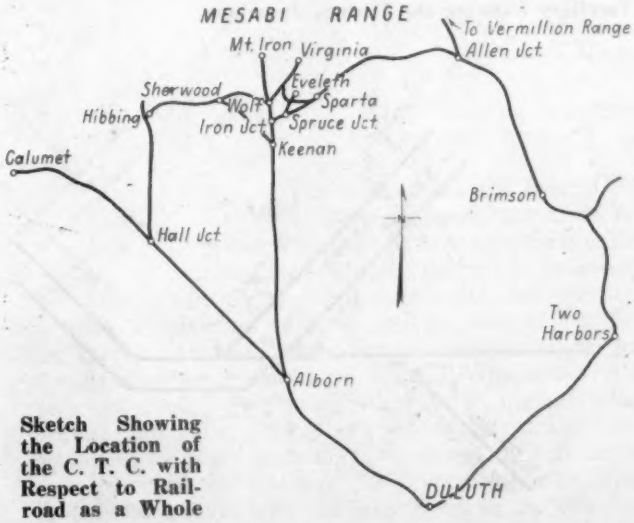
The C. T. C. Control Machine Is in a New Office Building at Iron Junction

C. T. C. Speeds Ore on D. M. & I. R.

Project including five junctions, as well as 5 miles of double and 6.5 miles of single track, saves many stops for heavy trains

TO SPEED up traffic, provide greater flexibility of operations, and avoid stopping heavy ore trains, the Duluth, Missabe & Iron Range has installed centralized traffic control on 5 miles of double and 6.5 miles of single track, which includes five junctions at Keenan, Iron Junction, Wolf, Spruce and Sparta, all of which are in Minnesota.

The D. M. & I. R. is one of the two railroads which haul ore from the Missabe and Vermillion iron ranges in northeastern Minnesota, to ports at Duluth and Two Harbors on Lake Superior. From these ports, the ore is shipped in lake boats to various ports on the Great Lakes. The rail haul from the mines to Duluth and to Two Harbors varies from about 70 miles to as much as 120 miles. In 1943, a total of 84 million tons of ore was hauled from this territory, of which the D. M. & I. R. handled 41,000,000 tons. For 1944, the War Production Board has set a tentative goal of a total of approximately 90 million tons to be hauled from this territory.



Sketch Showing the Location of the C. T. C. with Respect to Railroad as a Whole

Heavy Trains

The ore is handled in specially constructed hopper-bottom cars. One type of car, weighing 17 tons empty, will hold 47 gross tons of ore, and a second type, weighing 22.5 tons empty, will hold 67 gross tons of ore. The trains are handled by Mallet-type locomotives which have a tractive effort of 140,000 lb. The length of the trains varies from 125 to 180 cars. A train of 180 loaded cars makes a total of about 9,000 gross tons per train. With trains made up of this many cars, it is highly essential that they be kept moving from the time they leave the yards near the mines until they arrive at the yards near Duluth or Two Harbors. Likewise, from the standpoint of tonnage and grades, it is just as essential to minimize the number of stops for trains of empty cars being moved from the docks to the yards near the mines. If stopped where part of the train may be over a little rise or in a

sag, the draft gear may be damaged when starting. Furthermore, the time lost in accelerating one of these heavy trains is important, not only with reference to the train itself, but also to other trains being blocked out or delayed because of the first train stopping.

Routing of Trains

A general practice followed previous to the war was to use the single-track Shaw cut-off exclusively for southbound loaded trains between Sherwood and Keenan, from which point these trains moved on south over the double track to Duluth. On the other hand, the empty-car trains en route to Sherwood were routed over the double track north from Keenan through Wolf and then over the single track line to Sherwood.

Because of Duluth being farther west, the lake boats save about six hours for each round trip by loading at Two Harbors rather than at Duluth, and this means that a boat can make more trips in a shipping season. Partly for this reason, and partly for mixing purposes, much more ore is being moved to Two Harbors than previously. A result is that, on the D. M. & I. R., more trains are being routed over the 5.6 miles of single track between Iron Junction and Sparta Junction, and also a certain number of loaded trains are being routed from Sherwood eastward via Wolf, Iron Junction and Sparta to Two Harbors. On double track on the D. M. & I. R., trains are operated left-hand running.

In the territory equipped with centralized traffic control, one passenger train is operated each direction daily. Also a mixed train each way daily starts at Iron Junction, runs over the Biwabik branch to Spruce and then over the line to Eveleth. A local freight train is operated each way daily on the main line via Keenan, Iron Junction and Wolf. Approximately 90 to 92 train movements are made on the C. T. C. territory on an average day, and of this total, about 42 movements are made during the first eight-hour trick, and about 25 during each of the other two tricks.

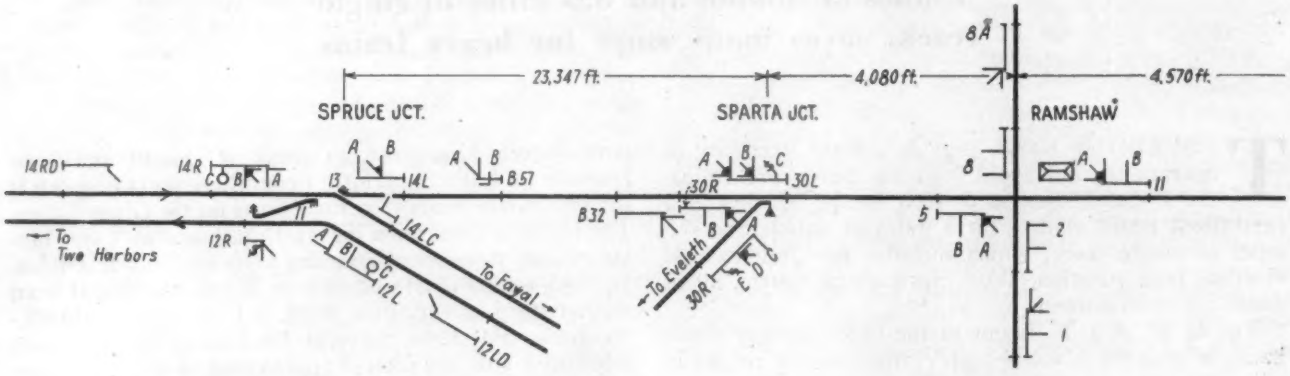
Stops at Hand-Throw Switches

Prior to the installation of centralized traffic control, there was a mechanical interlocking at Keenan, which included a crossover between the two main tracks and a junction switch leading to the single-track Shaw cut-off to Sherwood. At Sparta, the junction was protected by a gate across the single-track line. When an eastbound train arrived on this single track line, it was stopped while a trainman swung the gate which caused signals on the double-track main line to be set at the Stop aspect. Then the trainman reversed the junction switch and the west switch of the crossover. The east switch was, and still is, equipped with a spring and buffer mechanism so that eastbound trains trail through. After the train had passed, the trainman placed the switches in normal position. When operating a westward train from the west-bound main track to the single track, the junction switch and the gate were handled by the trainman.

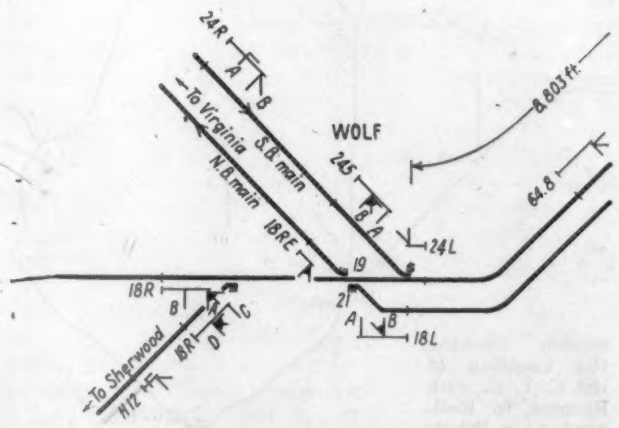
At Iron Junction and at Wolf, no signals or interlockings were in service, the trains on certain routes being required to stop for trainmen to throw the switches. At Spruce Junction, 2.1 miles east of Iron Junction, a single-track line branches off and extends 2.7 miles to Eveleth, Minn. One mixed train, operated in each direction daily over this branch line, also uses the main track between Spruce Junction and Iron Junction.

C. T. C. to Save Train Stops

The elimination of numerous stops for heavy trains at Wolf, Iron Junction and Sparta, the desire to further the interests to safety in the handling of trains at these three points and increased track capacity between Iron Junction and Sparta (the only single track on the entire route between Iron Junction and Two Harbors), were the principal objectives for installing the C. T. C. The War Production Board, when granting approval of this project, reduced the number of switch machines to be installed from 24 to 16, and reduced the number of electric locks for hand-throw switches to 9. As approved by the W. P. B. and as installed, the project includes: (1) semi-automatic C. T. C. signals at the five junctions for authorizing train



Track and Signal Diagram of C. T. C. Territory Showing the Various Junctions



movements by signal indication, totaling 29 high signals and 11 dwarfs; (2) automatic block signaling for left-hand running on the double track and for either direction on the single track as well as distant signals, totaling 8 signals; (3) dual-control electric switch machines at the crossovers and junction switches, totaling 16 machines; and (4) electric locks on 9 hand-throw switches.

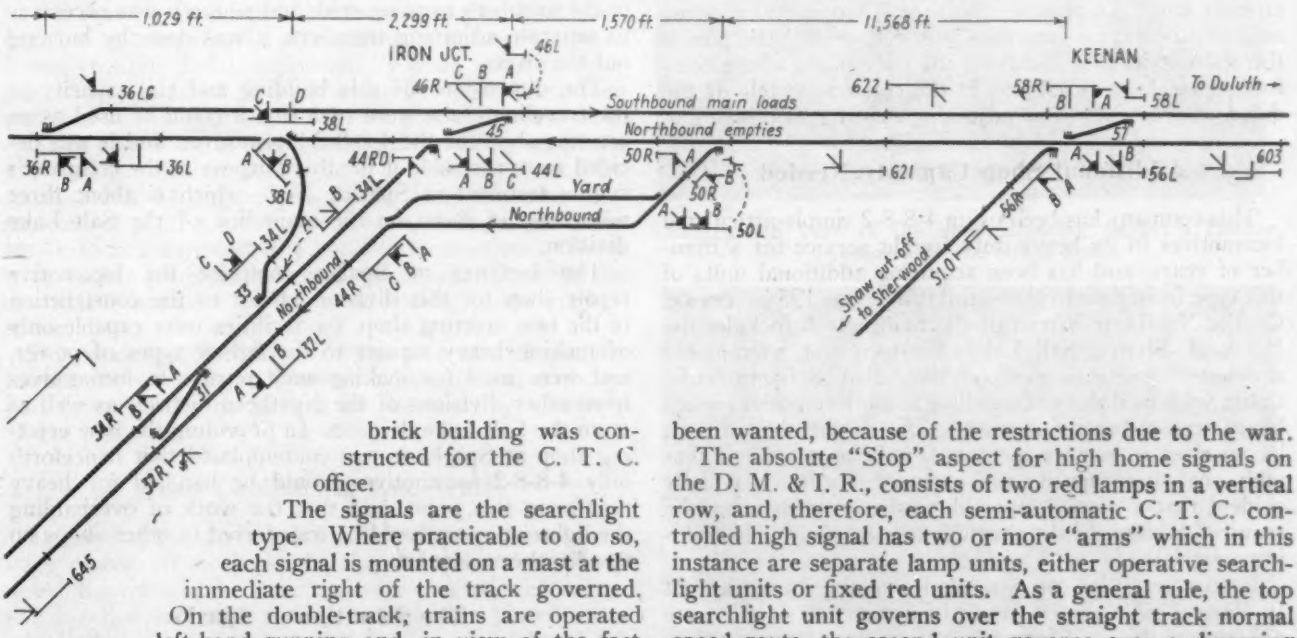
The Control Machine

At Keenan, power switch machines were installed at both ends of the crossover and at the junction switch. At Sparta, power switch machines were installed at the junction switch and the west end of the crossover, the spring mechanism previously in use at the east end of the crossover being left in service as it was. At Wolf, power machines were installed on three switches and a spring mechanism at a fourth, as shown in the diagram. At Iron Junction power machines are used at the junction switch and certain crossovers, a spring mechanism being used at the north end of crossover 31.

The C. T. C. control machine, which controls all the power switches and signals at the five junctions, is located in an office at Iron Junction. This machine has 14 levers for controlling switches, 14 levers for controlling signals, 5 toggles for controlling electric locks on hand-throw switches and 9 buttons for controlling maintainers' call lamps. Associated with each lever is a set of lamps which repeat the positions of switches and the aspects displayed by signals. The illuminated track diagram has lamps which indicate the occupany of all sections of main tracks. The time coding system using two line wires is used to send controls from the office to the various field stations to control the signals and switches, as well as to return indications to the office. On account of fire hazard in the existing frame station, a new one-story concrete and brick building was constructed for the C. T. C. office.

The signals are the searchlight type. Where practicable to do so, each signal is mounted on a mast at the immediate right of the track governed. On the double-track, trains are operated left-hand running and, in view of the fact that there is not sufficient clearance between tracks for signals, they were placed on masts at the left of the track governed. This practice applies to the six intermediate automatic blocks on the double track. Placing automatic block searchlight signals at the left of the track governed, on masts of the proper height to bring the lens on a level with the engineman in the cab, has been found to meet the approval of enginemen better than placing the signals on bridges over the tracks. Steel was not available to construct signal bridges, even if they had been wanted, because of the restrictions due to the war.

Signal 44L at Iron Junction

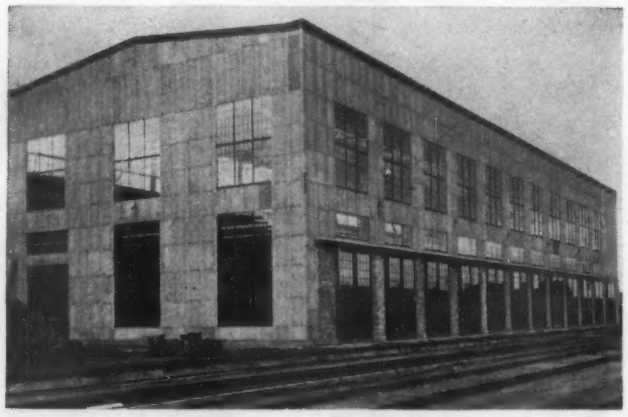


The absolute "Stop" aspect for high home signals on the D. M. & I. R., consists of two red lamps in a vertical row, and, therefore, each semi-automatic C. T. C. controlled high signal has two or more "arms" which in this instance are separate lamp units, either operative searchlight units or fixed red units. As a general rule, the top searchlight unit governs over the straight track normal speed route, the second unit governs over a diverging medium speed route to a main track beyond. Where no medium speed route exists, the second "arm" is a fixed red marker. Correspondingly if there is a medium speed route but no high speed route, the top arm is a red marker, while the second arm is operative, as for example signal 34L at Iron Junction.

(*Continued on page 548*)

New Erecting Shop from Old Steel

Southern Pacific reclaims frame from retired structure for construction of facility needed to provide additional capacity for overhauling heavy locomotives



The Walls of the Shop Were Covered with Corrugated Asbestos-Cement Siding

WHEN confronted with the necessity, in the face of the war-time shortage of steel, of providing a new erecting shop for handling its heavier locomotives, the Southern Pacific solved the problem by retrieving the steel frame of an abandoned shop building which had been dismantled several years ago, and re-erecting it at a new location at Sparks, Nev. As originally built, the structure had brick walls, but when it was re-erected at the new site the steel frame was covered with corrugated asbestos-cement siding, and, to compensate for the lack of stiffness in the end walls, two built-up timber columns, 50 ft. 6 in. high, were installed at each end. As another measure for conserving steel, only plain concrete was used in the floor and the pits of the shop at its new location; the only place where reinforcing steel was used was in the concrete lintels of the enlarged doorways of an adjoining existing shop building.

Additional Shop Capacity Needed

This company has been using 4-8-8-2 simple-articulated locomotives in its heavy-duty freight service for a number of years, and has been acquiring additional units of this type from time to time until it now has 195 in service. On the Northern district of the road, which includes the Portland, Shasta, Salt Lake, Western and Sacramento divisions, there was only one shop, that at Sacramento, Calif., with facilities for handling these locomotives when heavy repairs became necessary. As the number of such locomotives in service increased, it became evident that additional shop capacity was essential, but it was equally evident that a special approach to the problem would be required because of the shortage of steel and other building materials.

Fortunately, the company had available in storage at El Paso, Tex., the steel frame of a structure of adequate dimensions that had formerly served as an erecting shop at that point for the Texas & New Orleans (Southern Pacific Lines in Texas & Louisiana), but which had been abandoned some years ago. The structure remained standing until 1941, at which time an urgent need developed for the property on which the building stood, and for this reason it was dismantled and the frame and other essential parts were stored nearby.

This structure was 252 ft. 8 in. by 80 ft. in plan and was of brick and steel construction, the roof being carried by Warren trusses with verticals, which had a clear span between the steel columns in the side walls. Except for the end bays, which were 26 ft. 4 in. long, the roof trusses were spaced 20 ft. apart. For part of its length, the roof was surmounted along its center line by a monitor or clerestory, also with a structural steel frame. The interior of the building was served by a 200-ton traveling crane with two lifting beams, and a 15-ton auxiliary crane. Ample daylight illumination was provided by extensive window areas in all sides of the building and in the clerestory, which were fitted with steel sash glazed with wire glass.

At the time the building was dismantled in 1941, the steel frame was in good condition and it was considered probable that an opportunity would be provided to return it to service at some future time. For this reason the work of taking down the building was performed with care to avoid damaging any of the essential parts. None of the members were severed, and where it was necessary to separate adjoining members, it was done by burning out the rivets.

The dimensions of this building and the capacity of the traveling crane were such that it could be used as an erecting shop for the 4-8-8-2 locomotives, and it was decided to re-assemble it for this purpose at the company's engine terminal at Sparks, Nev., which is about three miles east of Reno on the main line of the Salt Lake division.

The facilities at Sparks comprise the locomotive repair shop for this division. Prior to the construction of the new erecting shop, the facilities were capable only of making heavy repairs to the lighter types of power, and were used for making such repairs to locomotives from other divisions of the Northern district, as well as from the Salt Lake division. In providing the new erecting shop at Sparks it was contemplated that henceforth only 4-8-8-2 locomotives would be handled for heavy repairs at this point, and that the work of overhauling the lighter power would be transferred to other shops on the Northern district.

The Situation at Sparks

The principal units of the engine terminal at Sparks include a 37-stall enginehouse, with a 120-ft. turntable, and a main shop building, 120 ft. by 450 ft. in plan, which is located on the east side of the enginehouse. The northerly portion of this building is occupied by a machine and erecting shop and is served by a 100-ton traveling crane. Also, there are 11 engine pits, each 45 ft.

long. It was largely because of the limitations of this crane and the fact that the pits were too short, that this shop could not be adapted to the handling of the 4-8-8-2 engines. The blacksmith, sheet metal and boiler shops are also housed in this building. Paralleling the main shop building on its east side, and separated from it by a 100-ft. strip of property, is the transfer table, which projects sufficiently beyond each end of the building to serve a shop track extending to the enginehouse. Two tracks extend into the main shop building from the enginehouse, one into the erecting shop and the other into the building near its southerly end. East of the transfer table at its southerly end is an extensive car-repair yard.

From the foregoing, it can be seen that the layout at Sparks was such as to offer a suitable location for the new erection shop, namely, the space between the existing shop building and the transfer table, and it was in the northerly portion of this space that the building was erected.

Thus, without major alterations in the existing layout, it was possible to locate the new building in such a position that it has the advantage of being directly adjacent to the existing main shop on one side and to the transfer table on the other. This location also had the advantage that the new shop could be given a connection with the enginehouse by means of the existing track extending into and through the old erecting shop.

Connection with Existing Shop

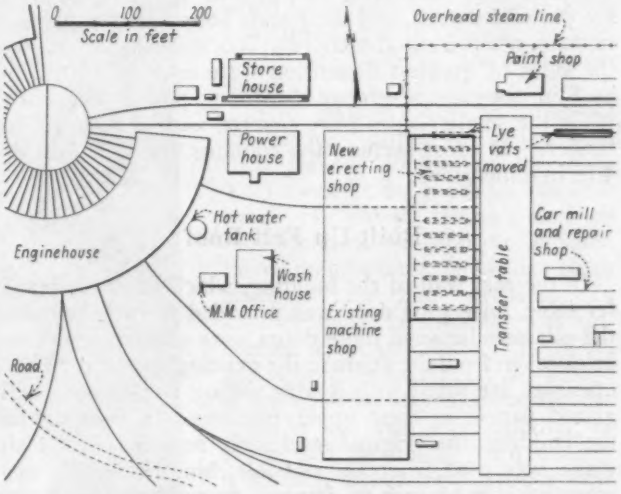
The new shop is so located that it is separated from the existing structure by a distance of 10 ft., and this space is roofed over to serve as a walkway between the two structures. Below this roof, the side wall of the new shop was not enclosed, and the existing engine doors in the adjacent wall of the older building were enlarged considerably, thus permitting complete freedom of movement between the two buildings. Incidentally, the walls of the existing shop are of brick construction, and when the door openings in the side wall were enlarged, a reinforced-concrete lintel, supported by plain concrete door jambs, was installed in each opening. The brick thus removed was re-used in the construction of the new shop.

As re-assembled at this location, the erecting shop was provided throughout with a floor of plain concrete 5 in. thick. Also, 11 engine pits 58 ft. long, likewise constructed of plain concrete, were built, their length being ample to accommodate the 4-8-8-2 locomotives. There is an engine pit in each bay of the structure, except the one that is occupied by the track leading to the enginehouse.

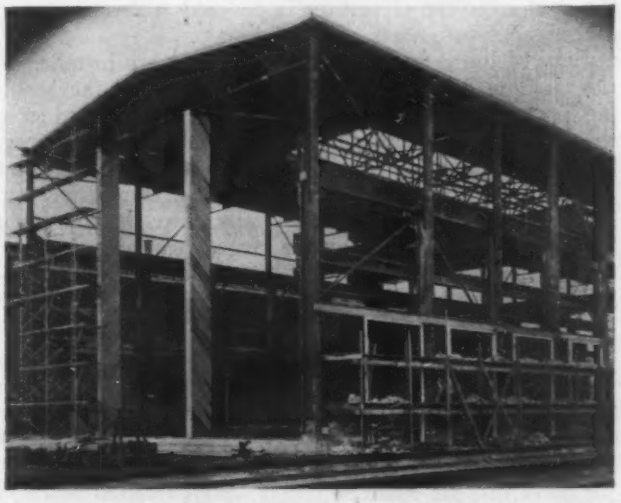
For drainage, the floors of the pits are all pitched toward the westerly ends where a longitudinal drainage tunnel, extending the length of the building, connects all the pits.

Wood Columns in End Walls

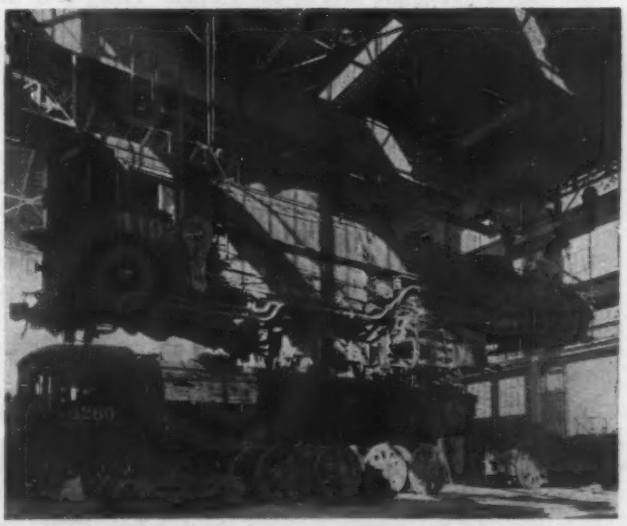
In erecting the steel work for the building, the columns were placed on footings of plain concrete. As already noted, the walls of the structure were covered with corrugated asbestos-cement siding, which was placed in a board-and-batten arrangement. In the side walls of the structure, the siding is fastened by means of screw nails directly to timber nailers secured to the columns and other steel members. In the end walls, where there are no steel members other than the end trusses and their supporting columns, the asbestos-cement siding was applied over 1-in. tongue-and-groove sheathing fastened to a system of wood framing. Because of the large areas of the end walls, it was considered necessary to provide additional means of stiffening them against wind action, and, since the use of steel members for this purpose was out of the question, two large built-up wood columns were installed in each end wall, being supported on concrete footings. These



Partial Plan of the Layout at Sparks, Showing the Location of the New Erecting Shop



Construction View of the Shop, Showing Built-Up Timber Columns in the South End



Lifting One of the Heavy Locomotives in the New Shop

columns reach from the floor level to the lower chord of the end roof truss, a distince of 50 ft. 6 in.

Actually, each of the columns is an enclosed timber Warren truss, placed vertically, in which each chord consists of four 3-in. by 10-in. timbers, arranged in pairs. The diagonals, consisting also of 3-in. by 10-in. timbers, are placed between, and their ends bolted to, the pairs of timbers comprising the chords. To enclose the trusses, the sides of greatest dimension were covered with 2-in. by 8-in. tongue-and-groove sheathing, placed diagonally, while the smaller sides were covered with 2-in. by 16-in. timbers. In cross-section, the columns are 1 ft. 7 in. by 4 ft. in dimensions.

Built-Up Felt Roof

In the east wall of the building, which faces the transfer table, an engine door was provided in each bay, and the pilasters between these doors were constructed of the brick taken from the doors in the existing structure. These openings are fitted with double sliding wood doors with glazed panels in their upper portions. In constructing the building, the original steel sash, reglazed with plain glass, was used wherever possible, but where this sash was unusable because of damage, or was missing, it was replaced with wood sash. The building has a built-up felt roof on 1-in. by 6-in. tongue-and-groove sheathing, but the roof over the clerestory is covered with corrugated asbestos-cement sheets.

Both of the original traveling cranes were installed in the building in its new location. For heating the building, six projection-type unit heaters were suspended from the roof members along the center-line of the structure. The interior lighting consists of a series of glass-reflector type fixtures arranged overhead along the center line, and metal reflectors along the side walls. Excellent daylight illumination is supplied by the large areas of sash in all four walls of the building and the clerestory, and to enhance this effect further all steel work in the interior was painted a light color.

New Transfer Table Installed

Since the existing transfer table was not adequate to handle the 4-8-8-2 locomotives, it was necessary, in connection with the construction of the erecting shop, to build a new transfer table on new foundations. The project also included the construction of a new 200-ft. concrete stripping pit east of the transfer table, and the removal of the lye vats from their old location on the site of the new shop to a point east of the transfer table. In connection with this undertaking, the existing machine shop is being rearranged and modernized by the addition of a number of new machines.

The work of building the new erecting shop was started in July, 1943, and finished in February, 1944, the first engine being lifted on the ninth of that month. While current operations in the shop are being restricted by the manpower shortage, it is expected that, when fully-manned, it will be capable of overhauling seven 4-8-8-2 locomotives each month.

Directors of the Project

This project was undertaken under the general direction of W. H. Kirkbride, then chief engineer of the Southern Pacific and now retired, and was completed under the supervision of his successor, E. E. Mayo. All construction work involved in the project was performed under contract by Robert E. McKee, El Paso, Tex.

C.T.C. Speeds Ore

(*Continued from page 545*)

At Keenan the distant signal S1.0 on the Shaw cut-off is near the top of a grade descending toward Keenan. If an ordinary Approach aspect were used on this signal and a southbound train proceeded, it might not be able to stop on the grade short of the home signal at Keenan. An arrangement could have been provided for trains to stop back of the distant signal until both the home and the distant signal were cleared but this would have caused extra train stops. For these reasons a special aspect was provided on this distant signal. In addition to the conventional three-aspect searchlight signal unit there is a lower "arm" which is normally extinguished, but when illuminated by C. T. C. it is green.

By means of the annunciator bells and track occupancy lamps on the diagram, the operator in charge knows the location and progress of all trains on the main tracks. If a train on the main line is passing through Keenan when a southbound train on the Shaw cut-off "shows up" on the annunciator section, the operator can tell by his diagram lamps whether the main-line train will clear Keenan by the time the train from the Shaw cut-off arrives at Keenan. If so, he sends out a special control which illuminates the bottom unit of the distant signal S1.0 so that it displays a special aspect of yellow over green, which indicates to the engineman that the Keenan home signal is not as yet cleared for him but that he can let his train drift down under control toward Keenan, and that by the time he arrives the signal at Keenan will be cleared for him. This same special type of aspect is used on the two distant signals Q10 and H12 east and north of Wolf.

"S" Signal at Spruce Junction

Only one local train each way daily uses the switch at Spruce Junction, and, as this is a light train, no serious delay is occasioned by stopping to operate a hand-throw stand. For this reason no power machine was installed. but an electric lock, under C. T. C. control, was applied to this switch. Signals were installed to govern movements from the branch to the main line or vice versa. When a train on the branch approaches Spruce Junction, a track-occupancy annunciation appears on the C. T. C. machine. If the operator is ready for the train to occupy the main track and proceed to Iron Junction, he sends out a control which causes a letter "S" to be displayed in a lamp unit which, in effect, is a third "arm" on the signal 30R.

This aspect of red-over-red-over-"S," indicates that the electric lock on the switch is unlocked so that the trainman can throw the switch, after which a yellow or a green aspect is displayed in the second arm, and the "S" is extinguished. Then the train enters the main track, and the switch is placed normal before departing.

Similarly, the eastward signal 30L at Spruce Junction has an "S" unit, as the third "arm," to instruct the trainman of an eastward train for the branch, when switch may be thrown. Then the red over yellow aspect is displayed on signal 30L to authorize the train to move to the branch line.

This centralized traffic control project was installed by the railroad forces under the jurisdiction of Leland Clapper, chief engineer, and under the supervision of W. E. Hawley, electrical and signal engineer, the major items of equipment being furnished by the Union Switch & Signal Company.

Frederick E. Williamson Dies

FREDERICK E. WILLIAMSON, president until recently of the New York Central, died at his home in New York City, September 29—just a little more than six weeks after illness had forced him to retire from the top executive position which he had occupied for nearly 13 years. He was 68 years of age.

This distinguished leader of the industry had spent his entire business career as a railroad man. When, acting upon the advice of physicians, he tendered his resignation to the board of directors on August 14, it was agreed "with great reluctance and deep regret" that he would relinquish, as well, all responsibilities in subsidiary companies of the System, but remain on in an advisory capacity until the end of this year.

Blackstone Studios

Frederick E. Williamson

In making known Mr. Williamson's death in a letter to all employees of the New York Central, President Metzman, who succeeded him on September 1, warmly and accurately praised his predecessor as "a man of calm courage, outstanding force and recognized ability," who had served the company and the entire industry "with honor."

General tribute was accorded the former president at the time of his retirement, the board noting that he had exhibited exceptional leadership throughout the years of depression, and in the present war years, when the "problems of management and operation became even more complicated and burdensome." Widely loved and respected, he was known by the men on his road to be a "prodigious" worker.

There is a story told of an earlier stage of his career which typifies his sympathetic but effective manner of dealing with personnel relations. Back about 1916, when he was superintendent of the Hudson division, he heard of the probable transgression of a certain employee, who, rumor had it, was coming close to a violation of Rule G. Believing that this man could best be influenced to his own benefit otherwise than by a personal rebuke, he called in the chairman of the Brotherhood grievance committee and said:

"Can you not straighten So-and-So out so that his peccadilloes may not become a matter of discipline?" The chairman, it is said, could and did.

As his later years brought him increasing dignity, he lost none of his earlier touch. During a recent wage negotiation, at times the atmosphere was charged with strain. After a particularly heated session, the representatives of the contending sides took a brief recess during which the two groups kept to themselves. Then Mr. Williamson came in. He made straight for the "other" side, and was soon shaking hands with "the boys," and the tension vanished.

Mr. Williamson was born at Norwalk, Ohio, June 14, 1876. His early life was spent in Cleveland, where his grandparents had settled in 1810. He prepared for college at the University School, in that city, and was graduated from Yale University in 1898, with the degree of bachelor of arts. While at Yale, he learned telegraphy.

After leaving college he applied to his uncle, Samuel E. Williamson, then general counsel of the New York Central, for a job on the railroad. He was started as a clerk on the Mohawk division at Albany. Seven months later, he became claim agent on the same division. In another eight months he was appointed agent at Rome, N. Y. While in this job, he took every advantage of the vacation season, assuming the work of one man after another, in order that he might learn exactly what each was doing. After a year and a half at Rome, he was transferred to Utica as agent, then to Troy in the same capacity.

He made his first appearance at headquarters in New York in 1903, as car accountant. In three years he became assistant superintendent of the Harlem division. Next followed work as superintendent of terminals at Albany. In 1910, he became assistant superintendent of the Mohawk division, later taking on the duties of superintendent on the St. Lawrence division, at Watertown, and, in 1916, on the Hudson division.

6½ Years on Western Railroads

In 1917 and 1918, he was attached to the U. S. Railroad Administration in New York, and for seven years acted as general superintendent and assistant to the general manager of the New York Central. Then followed the beginning of his six and one-half years away from the N. Y. C. In July, 1925, Mr. Williamson went with the Northern Pacific as vice-president in charge of operation and maintenance. When he made the trip West in his business car, it is said he rode everywhere on the train except in his car, talking with the engineer, the trainmen, and with agents and employees all along the road.

Three years later he became executive vice-president of the Chicago, Burlington & Quincy and the Colorado & Southern, in January, 1929, becoming chairman of the executive committee and president of these latter two roads. As president of the Burlington, he continued his habit of unostentatious efficiency.

On January 1, 1932, he returned to the New York Central as president and director of the System and its subsidiaries. During the 22 days of government operation of the railroads several months ago, Mr. Williamson was commissioned a colonel in the Army and was one of seven regional officers in charge. He directed Eastern region activities.

For many years he had been president of the Eastern Railroads Presidents' Conference, a director and member of the executive committee, Association of American Railroads, and director of the Central of New Jersey. Mr. Williamson held memberships in the American Railway Engineering Association, New York Railroad Club and the Chicago Club.

Scholarly Inquiry Merits a Welcome

When scholars disseminate misinformation they injure themselves, as well as the railroads and the public — Some practical pointers on how to minimize misunderstanding

By Ralph Budd,

President, Burlington Lines

MY approach to the question of the relationship of the corporation and the historian is that of a business man who is disturbed by inadequate and sometimes prejudicial use of facts by historians, and the possible effect upon the general welfare of conclusions based on misstatements. Both the business man and the historian want the writing and teaching of history to be factual and fair and as thorough as possible. In so far as imperfect knowledge of American history is due to lack of access by historians to corporate records, the cause should be removed. I cannot but feel that general agreement to such access by companies whose files have been preserved, will go a considerable way toward improving the situation. I do not see what harm could come from making such reports available to scholars, provided that in using them consideration be given to the ethical and legal standards of the time, with full appreciation of the political and competitive setting in which a business man has to work. The availability of corporate documents certainly should tend to prevent the making of careless or misleading statements which, without the records, might go unchallenged.

Current Reports Frequently Inaccurate

That misleading assertions will not be wholly eliminated through this or any other means is shown by biased treatment of more or less current events. Of course, not all such accounts are the work of historians, but numerous reports from schools indicate that some teachers of history do not hesitate to accept and use biased writings. The attacks being made upon business and the individuals who manage it, despite an ample supply of facts, account to a large extent for the reluctance of corporations to make their records available indiscriminately to everyone.

Some special considerations enter into my feelings about the historian. The great influence which the teacher and writer of history may have on the youth of America—hence the potential effect of their teachings and writings on the future of the country—seems to me to impose special restraint in the exercise of their exceptional opportunities. To them are entrusted our most precious possessions—our children. Does not the principle, an axiom in administration, that authority and responsibility must go hand in hand apply also to those who wield such strategic power in forming the opinions of youth? Does not their enjoyment of academic freedom put teachers peculiarly on their honor? Should these things not tend to make them meticulously careful to separate what they state as fact from what they state as opinion, and should not their opinions be carefully identified as such and the opposing views and reasons which support them also be given?

The Scholar's Peculiar Responsibility

There may be no difference in the quality of honor which we have a right to expect from the banker and that which we have a right to expect from other business men, but, some way, it always seems worse for a banker, whose special function is safeguarding depositors' funds, to default in his trust, than it does for the ordinary man to lose other people's money entrusted to him. Similarly, when facts and truths are misused by the scholar who is honor bound to respect them, it seems more shocking than for the layman to misrepresent in such matters.

In general, the business man is concerned with immediate problems, while it is usual for the scholar to emphasize long-range developments. I am not sure that the business man who has to plan for the comparatively near future and act promptly is unaware of the long-range possibilities. He has, however, no choice but to deal principally in terms of the present, and he must assume some risks. For him to delay in fear of uncertainties ahead would bring an end to progress. Indeed, his venturesomeness may bring into being new forces powerful enough to upset trends based upon the past, and to nullify the prophecies of social scientists and historians. This has happened.

But even if a business man should have a flair for contemplation of the long future, he does not have the time to follow that inclination with any degree of thoroughness. Nevertheless he cannot, and I think he does not, entirely overlook long-range possibilities.

Written Records Are Incomplete

The historian will do well to note that, even if everything in a company's files is located and properly oriented, there will be gaps in the record because there will be missing from the written the considerable oral discussions which precede and often lead to decisions of policy and the action to follow. Such talks occur for the most part in informal meetings and are not recorded. These unavoidable breaks make it important to get the most complete records possible and to investigate as wide an area of activity as possible so as to know and understand about the general conduct of a company's affairs and the various undertakings of its officers. Only in that way can the best over-all judgment be formed as to the character of the individuals and the ideas underlying the policies which they formulated.

I recently endeavored—because the matter was then

This article is an adaptation of a discussion presented by Mr. Budd at a meeting of the Economic History Association at Princeton, N. J., on September 29—as a commentary on a paper by Dr. Stanley Pargellis, of the Newberry Library, Chicago. An earlier paper by Dr. Pargellis on this same general subject was published in *Railway Age* of February 26, page 416.

current and facts both recorded and unrecorded could be made immediately and completely available—to have a scholar whose objectivity would be unquestioned to undertake an examination into certain rather large and far-reaching corporate financing. The transaction was looked upon generally as quite constructive and the Interstate Commerce Commission, without any dissent, held it to be in the public interest; yet United States Senator Shipstead made a savage attack upon the plan and more than one financier did likewise. These widely circulated charges were sufficient to cause considerable adverse public comment and it seemed worth while to obtain an unbiased report on all the facts so that such a report, as well as the contemporary press accounts of the financing, would be made a part of the record for future students.

After all, present misstatements, unless corrected now, may lead tomorrow's historians into serious errors, no matter how conscientious they may be. It was a great disappointment and, I think, a loss to the cause of economic and business history that such a "spot" research job could not be undertaken.

How to Learn Railroading's Elements Quickly

The suggestion that those who are to write the history of a corporation or industry should obtain some first-hand knowledge of it from active working experience is not so easy to comply with, as it is to make corporate records available. The great value of such "inside" knowledge cannot be denied. Actually, it is not so simple to carry out the suggestion in a way that will be effective. For one thing, the time available for getting the experience is short and it should be kept in mind that "a little knowledge is a dangerous thing."

Higher railway officers commonly have worked first in one department and then in another and some of them are quite familiar with roadway, equipment, transportation, accounting and traffic problems. Not many, even after years of service, have had the opportunity to work in all of those departments because it takes too long to become proficient or even fairly familiar with each kind of work. Usually they are experts in their own fields. Merely to ride over track and walk through shops for a few weeks or months would result in such superficial impressions that it does not appeal to me. Working temporarily in any one department would tend to produce an inadequate conception of the organization as a whole, like the blind man feeling one part or another of the elephant.

If the type of inside knowledge that is desirable pertains to corporate policies, their sources, how they are worked out and put into effect, I am inclined to think that there are certain offices on a railroad where a relatively brief experience might be valuable, and short excursions into other departments might then be made to considerable advantage. The primary offices I have in mind are those which deal with personnel, and those which handle the records of physical improvements.

Study Personnel and A. F. E.'s

In the personnel office it would not take very long to become generally familiar with the relations between the company and its employees and how some aspects of that relationship are administered. Some of the controlling factors would come to be understood, such as the opportunities for advancement, and the limitations of various kinds upon employees, and upon the company in considering promotions and other rewards of merit. The method of hiring and training employees, provisions for health, accident, and life insurance would be disclosed as well as the general attitude of the company towards its employees and vice versa.

Each railroad improvement is covered by a form entitled "Authority for Expenditure" prepared in accordance with the accounting and valuation rules of the Interstate Commerce Commission. These forms, known as "A. F. E.'s", constitute the basic data for accounting and valuation. Any work that involves capital expenditure is covered by such a form. It includes a description of the work that is to be done, the estimated cost, how it is divided between capital, operating, and other accounts, and the reason for making the expenditure. Upon a single large railroad several thousand A. F. E.'s will be made each year, covering many millions of dollars. Each of these A. F. E.'s is literally a piece of painstaking research; incidentally, they provide the best possible answer to the loose but frequent charge that railroads do not undertake enough research work. The preparation of some of them requires months of careful study and the supporting papers contain extensive calculations of a highly special character.

A careful examination of these documents and the files which support them will, I think, come nearer to revealing the policy of the company as regards physical and technical improvements and service than will any other procedure. The origin of the idea behind the project will often be found to be in some local or division office, and in practically all cases the progress of the recommendations upward to higher officers and eventually to the board of directors for approval is very illuminating.

Some companies have what are called "R. F. A.'s", ("Requests for Authority"), which are more formal than ordinary letter recommendations; if an R. F. A. passes muster with successive levels of officers, it eventually becomes an A. F. E. It would be feasible also for a scholar to go into the record of R. F. A.'s and learn the fate of those which were not approved, the reasons for their failure, as well as to trace the successful ones. It seems quite practicable to acquire first-hand knowledge of the personnel work and, my thought is, a study of Authorities for Expenditure might prove to be something which the student could take hold of, which would lead to an intelligent view of the company's side of many questions.

No Job for Zealous Special Pleaders

The result of my thinking on the general subject of the relations of the corporation and the historian is that I feel there should not be any conflict. An enlightened corporation management certainly should not want to influence the historian by any means except by making sure that he has access to all pertinent facts. At the same time, management not only has a right but a duty to insist that no zealot shall take advantage of access to company records and improperly use them for furthering some theory of his own on the ground that the end justifies the means, or on any other ground.

It seems to me that it comes finally to a matter of good faith, which after all is no different from what we must employ in ordinary affairs. We deal with reputable merchants because we believe they are honest and will not misrepresent their wares. In respect to his integrity I believe the historian is no different from the business man. A certain number no doubt will operate under a questionable code, just as a certain number of business men will take advantage of an opportunity to further what they think are their own interests. But the vast majority in each calling is both reputable and responsible. These are the men, I think, who should work as closely together as possible.

Railroads-in-War News

Manpower Shortage Is Critical on Coast

O.D.T. finds yards and sidings congested; San Francisco area is hardest hit

A critical shortage of railroad workers in the San Francisco Bay area is causing congested freight yards and sidings and slowing up the movement of war freight, according to Col. J. Monroe Johnson, director of the Office of Defense Transportation, in a September 29 appeal to qualified persons in other parts of the country to seek employment with the roads affected.

Train Crews Needed—Reports received by the O. D. T. indicate, according to Colonel Johnson, that "as many as 4,000" more railroad employees are needed now on the Pacific coast. The special need, he said, is for switchmen, firemen and brakemen, and the "crisis is most serious in the San Francisco Bay area." Because overseas shipments en route via the bay ports and materials consigned to war plants in that area are in danger of being held up by the labor shortage, according to the O. D. T. director, the situation provides "striking evidence that the westward shift of war transporation is giving American railroads a most difficult war job."

The O. D. T. statement went on to point out that roads serving the San Francisco Bay area are advertising widely in the newspapers and over local radio stations in an effort to recruit employees, working through the Railroad Retirement Board and in co-operation with local O. D. T. and War Manpower Commission representatives. The regional W. M. C. has established a top priority rating for hiring switchmen, firemen, and brakemen, of which the Southern Pacific alone was said to need 577 immediately. This road was arranging to furnish new employees free transportation to San Francisco from eastern points, according to the statement, and had arranged for physical examination to be given in the locality where recruitment takes place.

Trains Stalled by Crew Lack—In the month of August the port of San Francisco handled 22,855 cars of export freight, as compared with 16,486 in August, 1943, or an increase of 38.6 per cent, according to Colonel Johnson, and "the logic of the war situation indicates a continued increase."

The O. D. T. statement pointed out that records disclose "numerous" delays of freight trains in the San Francisco Bay area because trains could not be dispatched on account of lack of crews. During the first 16 days of September, it added, an average of 17.6 switch engines were idle daily in the San Francisco terminals because of a lack of yard crews. It was further stated that "railroad sidings as far south as Santa Barbara, Calif., and as far north as Klamath Falls, Ore., have been tied up because cars were not moved in the San Francisco yards."

2 Million Tons of Coal Monthly Handled by Sandusky Docks

For the second straight month the Sandusky, Ohio, coal docks of the Pennsylvania transferred more than two million tons of coal from railroad cars to ships, another record for the 1944 season in which a number of new marks have been established. Coal unloadings at Sundusky docks in September, this year, reached 2,049,000 tons, and in August, 2,066,257 tons, Never before August had the two million mark been reached in any one month. The best monthly record prior to August and September, 1944, was September, 1943, when 1,829,930 tons of coal were transferred from the rails to ships by the Pennsylvania's three unloading machines.

With the large amount of coal under load in its yards at Sandusky ready for unloading and with a number of trains enroute, the Pennsylvania expects to equal the record for the entire season of 1943 of 10,885,486 tons by October 4.

Sees Need for Continued Work on Transport Conservation

The possible early defeat of Germany will not end transportation difficulties, in the opinion of the Transportation Committee of the Chamber of Commerce of the United States, which last week issued a statement urging continuance of wartime measures of conservation and efficiency.

"Wartime demands," the committee said, "continue to tax the capacity of our domestic transportation facilities, and critical months lie ahead. The apparent imminence of the fall of Germany does not promise early transportation relief. On the contrary, termination of the war in Europe will necessitate immediate stoppage of materials and men en route and their diversion to other destinations via domestic or international transportation facilities, which in most cases are already loaded to capacity. There must be no thought of relaxation at this time. The situation calls for continued and intensified cooperation of shippers and carriers to load and unload freight cars and trucks promptly and fully and keep them moving, and for the many other measures for conservation and efficiency of wartime transportation which have proved so effective in this national emergency. . . . Only continuation of this cooperation with unabated vigor will assure maintaining the remarkable record of vital contribution to the war effort which transportation has so far achieved."

Advises on Returning Veterans to Rail Jobs

Report tells how it may be done with minimum of dislocation

Policies and methods by which railroad management may, with a minimum of dislocation, discharge its obligation of veteran reemployment, are set forth in a report on "Reemployment of Ex-Service Men and Women," which the Railroad Committee for the Study of Transportation has received from its Subcommittee on Labor and Personnel. The subcommittee is one of 15 at work on the research program sponsored by the Association of American Railroads and operating under the direction of A.A.R. Vice-President R. V. Fletcher.

250,000 Railroaders at War—The report points out that planning for the reemployment of the returning veterans "is one of the most important tasks facing railroad management." There are at present "more than one-quarter of a million" railroad employees in the armed forces and merchant marine, and many of them are entitled to be returned to their railroad employment under the provisions of the Selective Service and Merchant Marine acts. While the subcommittee predicts that "difficult situations will arise," it notes certain factors which will "tend to reduce the number of problems."

Listed in the latter connection is the fact that demobilization of the armed forces will be gradual; the indicated need for more railroad employees during the demobilization period than before the war; the railroad industry's familiarity with the "seniority" principle; and the fact that some former railroaders will not want to return to railroad jobs. It is recommended that each railroad appraise its own situation and organize itself accordingly, to give special attention to the returning veteran.

Special Staff May Be Needed—Railroads with large numbers of employees, it is suggested, may want to set up a "specialized staff or bureau." In any event, it is urged that all possible lessons for "the greater task ahead" be learned from current experience in the reemployment of veterans who are being dischargd in smaller numbers. "Those charged with this responsibility," says the report, "should be fully cognizant of the need for infinite patience and sympathetic understanding. They will interview the returning applicants and give them counsel. They will match the men with jobs. They will confer on mutual problems with labor representatives. Finally, they will serve as the railroad's point of contact with the Selective Service System, the Veterans Administration and other

interested government agencies. Where veterans are rehired through the normal prewar employment channels, methods should be devised to insure special handling of the reemployment problem,"

Meanwhile, the subcommittee looked over some interpretations with regard to compliance with the law, and found them of "doubtful legality," and "in direct contravention of labor agreements and practices under the Railway Labor Act." It recommended careful consideration of this subject by counsel.

Legal Status of Service Man—The law provides that a company which employed a veteran in other than a temporary capacity prior to his federal service, shall restore him to his former position or to "a position of like seniority, status and pay unless the employer's circumstances have so changed as to make it impossible or unreasonable to do so," provided the veteran: (a) has an honorable discharge certificate; (b) is qualified to perform the duties of the position; (c) makes application for reemployment within 40 days after his discharge. A veteran who is thus restored to a position cannot be discharged without cause for one year; and he must be considered to have been on furlough or leave of absence during his period of federal service, and shall not suffer loss of seniority thereby.

Noting that the foregoing are "general" terms, the subcommittee goes on to point out that the employer who seeks light must depend to a large extent on official and semi-official interpretations. It sets forth some of the more important interpretations which have been voiced either in court or by administrative officials.

Contravene Union Agreements—These include the position taken by Selective Service that qualified veterans are entitled to reinstatement "even though it necessitates discharge of a non-veteran with greater seniority." This is one of the rulings which the subcommittee believes is of "doubtful legality," and refers to counsel. Another Selective Service interpretation, found by the subcommittee to be "in conflict with seniority provisions," is that which stipulates that an employer may not require a veteran to accept reemployment at a new location if the employer is still in business at the place of former employment.

From this and other comment on the legal provisions and interpretations, the report proceeds to discuss in turn the favorable factors listed above. Then comes recommended procedure for handling the returning servicemen which is along specific lines, getting into such matters the need for a personnel inventory, reemployment of the disabled, upgrading returning servicemen, and the employment of veterans with no pre-war experience. The latter will be particularly non-railroaders who have been assigned to units of the Military Railway Service—"a valuable source of the type of youthful potential leadership material the railroads will need, particularly for the improvement of their supervisory organizations."

Employment of M. R. S. Men—Employment of these non-railroad veterans, the report adds, "should be considered as complimentary to the basic job of assimilating the former employee veterans. However, the emphasis will be different—it will be upon the employment of young men of exceptional capabilities." Meanwhile some of the returning railroaders will need training in "short brush-up courses to acquaint them with new methods, rules, and practices."

Members of the subcommittee are: Chairman L. W. Horning, vice-president, New York Central; A. M. Hartung, vice-president, Railway Express Agency; George A. Kelly, vice-president, Pullman Company; D. P. Loomis, executive director, Association of Western Railways; L. L. Morton, assistant vice-president, Louisville & Nashville; J. B. Parrish, vice-president, Chesapeake & Ohio; E. B. Perry, manager of personnel, New York, New Haven & Hartford; C. R. Young, manager of personnel, Illinois Central. Its previously-published reports are the "Partial and Progress Report on Railroad Personnel Problems," which was reviewed in the *Railway Age* of November 27, 1943, page 871; and the "Special Report on Public Relations Training for Railroad Employees," noted in the article entitled "Plans Well in Hand," which appeared in the issue of January 1, 1944, page 6.

Large Railroad Lumber Orders Now Under L-335

Purchases of large quantities of lumber by operators of transportation systems, formerly regulated by P-142, the transportation equipment order, are now governed by the lumber control order, L-335, the War Production Board announced on September 29. The change was made by Direction 5 to P-142, which stipulates that the 110 per cent quota established in the order does not apply with respect to any operator who is a Class I consumer under L-335.

A Class I consumer is one who requires more than 50,000 board feet of lumber per quarter, or who purchased more than 50,000 board feet in the previous quarter. The W. P. B. announcement explained that a Class I consumer, who is an operator of a transportation system, may use the rating assigned to him in P-142; but is permitted to order and receive lumber in any quarter only to the extent authorized on Form WPB-3640.

Steel Casting Price Increases

Locomotive crane castings, with the exception of shoes and treads, are given an increase of six per cent in their ceiling prices, while the maximum prices of railway dump car and tank car castings are raised 17 per cent under Amendment No. 13 to Revised Price Schedule No. 41, issued this week, with an October 9 effective date, by the Office of Price Administration. Power shovel castings are linked with the locomotive crane castings for the six per cent increase, while another change provides higher maximum prices for quantities of 1,000 or more railway ballast car castings "by the institution of a new quantity differential."

The O. P. A. announcement explained that the changes are designed "to help insure continued production of power shovel and locomotive crane castings, and to bring railway dump car and tank car castings into line with a general increase in ceilings of miscellaneous freight car castings granted January 15, 1944." In connection with the new quantity differential on railway ballast car castings, it is further explained that the January 15, 1944, increase "did not actually result in a 17 per cent increase on quantities of 1,000 or more," and the present action "assures this full return on these sales."

Among other changes made by the amendment is that wherein "two typographical errors in the ceilings for miscellaneous freight car castings as established January 15, 1944, are corrected." The O. P. A. reported that the amount of the price increase for power shovel and locomotive crane castings was one of the only two provisions of the amendment with respect to which there was a difference of opinion between O. P. A. and the Steel Castings Industry Advisory Committee.

Sorensen and Baylis Resign From O. D. T. Positions

August L. Sorensen, associate director of the Division of Materials and Equipment, Office of Defense Transportation, and Arthur E. Baylis, assistant director of the Division of Traffic Movement, resigned effective October 1. Mr. Sorensen is returning to his former position of manager of stores of the Erie with headquarters at Hornell, N. Y.; and Mr. Baylis, a former assistant to the vice-president in charge of traffic, New York Central, has gone back to that road as foreign freight traffic manager with headquarters at New York.

Mr. Sorensen has been succeeded at O. D. T. by F. Berkeley Robins, a former Chesapeake & Ohio assistant general supervisor of bridges and buildings, who has recently been on the staff of the Combined Production and Resources Board. Mr. Baylis' successor is S. P. Kelly, who has been connected with O. D. T. railway activities since April, 1942, previous to which he was associated with the traffic department of the St. Louis Southwestern.

General Ross Holds Forth in Office on Wheels

As a yacht carries a dinghy, to go places the yacht can't—so the business car of the Transportation Corps' chief in France takes along its dinghy in the form of a jeep. To facilitate his visits to French field installations and to enable him, as well, to hold conferences with officers while on trips, Major General Frank S. Ross, chief of the Transportation Corps, European Theater of Operations, recently requested a special two-car traveling office and garage. Accordingly, a former first-class railway coach was procured, and all but two compartments removed. A dining room, kitchen, conference room and sleeping quarters were added, and captured German chairs and rugs now give a suggestion of comfort to the general's office on wheels. His garage car is a shortened heavy French freight car, especially adapted to hold a command car, jeep and sleeping quarters for the drivers.

The reconversion job was the work of the railway shop company sponsored by the Chicago, Milwaukee, St. Paul & Pacific.

GENERAL NEWS

Plan Is Filed for Pullman's Divorce

Disclosed that Pennsylvania plans own sleeping and parlor cars

A series of hearings by a special three-judge court to determine the future operation of the railway sleeping car business of the Pullman Company appeared to be the next step in the Government's anti-trust proceedings, when, on October 2, Pullman, Inc., notified the court that it had elected to sell its sleeping car business and retain its railroad car manufacturing business in compliance with an anti-trust decree entered on May 8, 1944 and also filed a plan of segregation "for hearings and approval." The plan, which the court took under advisement, embodies the proposals made to railroads by Pullman, Inc., on August 30, (and reported in *Railway Age* of September 9, page 406) suggesting the formation of a railway-Pullman sleeping car company which would take over and operate the present sleeping car business of the Pullman Company.

Although 263 parlor and 7 private cars are not included under any of the provisions of the decree, it is the purpose of the Pullman Company to make separate sale of these cars and their equipment; first offering the parlor cars for sale to the individual roads to whom the Pullman Company has furnished parlor car service.

As was reported in the article in the September 9 *Railway Age*, the plan places a valuation of $81,352,222 on the properties. Of this amount $42,168,551 consists of heavyweight standard sleeping cars, shops, laundries and inventories, and $39,156,671 consist of lightweight cars which would be sold to the new company unless purchased by individual railroads.

Offers Cars, Not Stock—The proposal deals with physical properties rather than shares of stock because, "for numerous reasons, it would appear to be impracticable for Pullman, Inc., to sell, or for the proposed new company to purchase stock of the Pullman Company with that company's more than ten years of unsettled tax liabilities, its not-definitely-calculable liabilities under the Pullman Company's pension plan for employees, the large volume of uncompleted settlements with the railroads on contract periods ending in 1943 and 1944, the complications arising from outstanding minority shareholders in the Pullman Company which Pullman, Inc., has never been able to acquire and numerous other similar open-end items."

When the plan was filed with the court, Pullman, Inc., revealed that the Pennsylvania proposes to own and operate its own sleeping car service but pointed out that "the ownership and operation of sleeping cars by an individual railroad or the formation of a regional group of railroads would not be incompatible with the objective contemplated and need not affect the formation of a less than all-inclusive pool through ownership and operation of the remaining sleeping car properties by those railroads that desire to co-operate to that end."

A Non-Railroad Buyer, Maybe—It is anticipated that when the court holds hearings on the plan, representatives of various railroads will appear as "interested parties" to the plan and present railroad reaction to Pullman's suggestion. It is also expected that one or two non-railroad interests might offer to buy the properties.

Should the railroads decide not to purchase the properties or should the court fail to approve Pullman's plan, other courses remain open. Pullman, Inc., which under the decree has until October 5, 1945, to segregate its sleeping and manufacturing businesses, may submit other plans or the court may formulate and make effective its own plan.

N. Y. C. to Operate Cleveland Livestock Facilities

Arrangements for continuing livestock loading and unloading services at Cleveland, Ohio, have been worked out by the interested railroads in accordance with a plan whereby the New York Central will lease and operate the Cleveland Union Stock Yards Company's "railroad" facilities, which the Livestock Terminal Service Company has received authority from the Interstate Commerce Commission to abandon. N. Y. C. has filed with the commission an application for authority to execute the lease and operate the facilities, while all roads serving Cleveland (including N. Y. C.) have filed a joint statement outlining the plan and events leading up to the formulation.

In authorizing the Livestock Terminal Service Company to abandon operation of the loading and unloading facilities, the commission had stipulated that arrangements would have to be made by either the railroads or the Stock Yards Company to continue the service.

Signs Act Permitting Fare Cuts for Military Personnel

President Roosevelt last week signed H.R. 5196, the recently-enacted Interstate Commerce Act amendment which clarifies section 22 so as to remove any doubt as to the authority of common carriers to grant reduced fares to personnel of the armed services while on furlough or for a period of 30 days following their discharge.

8 Mos. Net Income Was $451,000,000

Net railway operating income for same period was $758,574,913

Class I railroads in August had an estimated net income, after interest and rentals, of $63,000,000 compared with $84,471,665 in August, 1943, according to the Bureau of Railway Economics of the Association of American Railroads. In the first eight months of 1944, they had estimated net income of $451,000,000 compared with $612,842,733 in the corresponding period of 1943.

Net Has Fallen for 15 Mos.—The August net railway operating income, before interest and rentals, was $101,363,891 compared with $132,271,087 in August, 1943, August being the fifteenth consecutive month in which the net earnings of the carriers has shown a decline. The eight-months net railway operating income was $758,574,913 compared with $972,297,169 in the same period of 1943.

In the twelve months ended August 31, the rate of return on property investment averaged 4.23 per cent compared with a rate of return of 6.06 per cent for the twelve months ended August 31, 1943.

Operating revenues for August totaled $836,184,024 compared with $800,177,331 in August, 1943, while operating expenses totaled $538,490,196 compared with $467,256,973 in the same month of 1943. Gross in the first eight months totaled $6,281,293,315 compared with $5,937,652,210 in the same period of 1943, an increase of 5.8 per cent; operating expenses amounted to $4,141,324,793 compared with $3,564,265,297, an increase of 16.2 per cent.

Class I roads in the eight months paid $1,249,773,602 in taxes compared with $1,272,188,314 in the same period of 1943. For August alone, the tax bill amounted to $178,059,159, a decrease of $5,927,927 or 3.2 per cent under August, 1943. Fifteen Class I roads failed to earn interest and rentals in the eight months, of which eight were in the Eastern district, one in the Southern region, and six in the Western district.

Results in the East and South—Class I roads in the Eastern district in the eight months had an estimated net income of $197,000,000 compared with $249,747,960 in the same period of 1943. For August, their estimated net income was $26,700,000 compared with $37,010,007 in August, 1943.

Those same roads in the eight months had a net railway operating income of

(*Continued on page 562*)

Great Lakes Board Has Presidents' Day

Woodruff urges that users of transport pay costs, White lauds research

"Railroad Presidents' Day" was observed at a Cleveland luncheon on September 27 by the Great Lakes Regional Advisory Board, in cooperation with the Traffic Club of Cleveland and the Cleveland Chamber of Commerce, in conjunction with the sixtieth regular meeting of the board. The speakers were: E. A. Dougherty, assistant general manager of the New York Central; R. E. Woodruff, president of the Erie; and R. B. White, president of the Baltimore & Ohio.

Union Chiefs There Too—Honored guests included J. W. Davin, president of the New York, Chicago & St. Louis; Carl E. Newton, president of the Chesapeake & Ohio; F. A. Gideon, president of the Newburgh & South Shore; E. W. Smith, vice-president of the Pennsylvania; George Durham, executive vice-president of the Wheeling & Lake Erie; D. B. Robertson, president of the Brotherhood of Locomotive Firemen & Enginemen; A. F. Whitney, president of the Brotherhood of Railroad Trainmen; and Alvanley Johnston, president of the Brotherhood of Locomotive Engineers.

"Never in railroad history," Mr. White said, "has there been so much research and planning as is now being done by and for the railroad industry and I can only conclude that rarely have we had better prospects of 'going places.'" Mr. White cited various predictions of national income which amounted to 125 billion or more for some years to come and concluded that, since freight traffic and national income have been rather consistent bedfellows in the past, the volume of freight traffic should be quite satisfactory after the war.

"It seems reasonable to believe," he continued, "that the enforced travel of the 10 million men and women in our armed forces, not to mention the traveling of their relatives and friends, will result in the greatest travel urge, on their part and on the part of the American people as a whole, in our history."

Who Should Pay for Transport?—Mr. Woodruff discussed restrictive legislation contending that if highways and airlines are to be extended at public expense, the cost should be amortized by charges to the users. Continuing, he said: "There is now considerable agitation about discriminatory freight rates in various sections of the country, and we cannot help but feel that this agitation is brought about for political reasons. We are opposed to political rate-making. Rate-making is too complex a subject to be determined by politicians, who admittedly are not specialists in that field.

Big Trains Permit Good Wages—"As we are opposed to political rate-making, so are we opposed to political job-making, such as the 'full crew' laws, whereby an extra man just rides the trains and is as necessary as a fifth wheel on a wagon. We are opposed to train-limit bills. It is only by the use of large locomotives, pulling long trains of heavy cars, by the use of better machines and facilities, that the railroads have been able to pay the higher wages and keep freight rates down as they have."

Mr. Dougherty reviewed the development of Cleveland, due in large part to the railroads, from its incorporation in 1814 to the sixth largest city with a population of 1¼ million and to the fifth largest industrial city in which 2,700 plants produced three billion dollars of manufactured goods in 1943.

Car-Shortage Impending?—The railroads are now at a very critical period in their ability and capacity to meet the impact of the load which will confront them during the ensuing weeks and months and are closer to a car shortage than they have been in 20 years, W. C. Kendall, chairman of the Car Service division of the Association of American Railroads, warned those attending the morning session. "Carloadings," he explained, "are approaching the annual peak. Ton-miles are at an all-time high. The length of haul has gone beyond all previous calculations, with the end not yet in sight. While new cars are coming off the production line, their receipts are not greatly in excess of retirements. There are actually fewer serviceable box cars available than at the corresponding period of one year ago. Due to continued and uninterrupted use of equipment and difficulty in maintaining adequate repair forces, there must inevitably follow a slight degrading of equipment.

"Movements for account of the military are now increasing due to the increased tempo of activity on both the European and the Western Pacific fronts. With the possible cessation of hostilities on the European front, supplies for the occupied countries will flow in increased quantities, and there will simultaneously be a great increase in traffic for the west coast, thus increasing the average haul and longer turning time for cars.

Peak Crop Movement—"The wheat production of the country tops 1,110,000,000 bushels this year, as compared with 836,000,000 in 1943, and a 10-year average of 760,000,000. Soya beans, to mention a comparatively new and somewhat localized crop, increased 160.3 per cent over the 10-year average for 1933-43. Sorghum grains in the southwest, now coming in, will run 45 per cent ahead of the 10-year average.

"Taking all these things into consideration, we must indeed find some way to stretch our transportation machine's capacity to meet these added loads. This can be done in only one way. There is no more equipment to be had on short notice. Each one of us must do more than we have ever done before toward creating increased car efficiency."

Changes in the methods of production and distribution of steel and other products after the war were predicted by H. D. Rhodehouse, general traffic manager of the Republic Steel Corporation, who also foresaw greater use of lightweight steels in the construction of both passenger and freight equipment.

Justice Dept. Seen Ousting the I. C. C.

Atlantic shippers learn anti-social effect of policy Biddle proposes

The future and welfare of all forms of transport may depend upon whether transportation is to be regulated by such administrative agencies as the Interstate Commerce Commission created by Congress for that purpose, or by the Anti-Trust Division of the Department of Justice, R. V. Fletcher, of Washington, D. C., vice-president of the Association of American Railroads, declared before the sixty-fifth regular meeting of the Atlantic States Shippers Advisory Board in New York on October 5.

Two Contradictory Bosses—Addressing a joint luncheon of the board and the Traffic Club of New York, Mr. Fletcher said that a transportation system adequate to meet the needs of commerce and national defense cannot be preserved "if transportation companies are to be regulated in their most vital concerns by the changing whims and fancies of those who may be clothed with a little brief authority, rather than by a responsible agency of Congress, informed by experience and free from political influence." Answering attacks made by officials of the Department of Justice against the so-called "conference method" of initiating railroad rates, Mr. Fletcher maintained that this method "is not only highly desirable, but also absolutely essential to the orderly conduct of the business of transportation."

"In its ultimate analysis," he explained, "this system does no more than to give effect to the principle that before important revisions in rates are entered upon, the proposed changes should be openly and freely discussed among the interested carriers and the interested shippers.

More Jobs for Lawyers—"Without such conferences, it might be necessary for the Interstate Commerce Commission to suspend every rate filed with it in order that interested parties might be heard as to the reasonableness and fairness of the rates. Such a course of action would entail upon the Commission, upon the carriers and upon the users of transportation a burden too heavy to be borne. Every rate change would lead to litigation and such a volume of work and such crippling delays that rates would no longer be flexible and responsive to business needs."

If Congress were to pass a law providing that the Interstate Commerce Commission shall make rules and regulations governing the conduct of rate bureaus, and that the carriers would not be subject to prosecution under the anti-trust law when they observe these rules, the transportation agencies "could go forward confidently on the road to a larger field of usefulness, unhampered by the meddling of the Anti-Trust Division," Mr. Fletcher concluded.

A Cautious View on Car Supply—In

(*Continued on page 561*)

Reinstated Freight Rate Increase Asked

Railroads urge commission to restore Ex Parte 148's suspended schedules

The railroads on October 5 asked the Interstate Commerce Commission to reinstate on January 1, 1945, the Ex Parte 148 freight rate increases which have been under suspension since May 15, 1943. The request, coming in a reply to the commission's September 21 order reopening the proceeding, stressed the carriers' need for the additional revenues "so that they will be in a financial condition to take care of the great amount of deferred maintenance that is accumulating because of the war and other improvements necessary for the maintenance of adequate service in the post-war period."

Post-war Expenditures at Stake—The reply also emphasized how the combination of increases of more than 25 per cent in the level of railroad wages and prices of materials, with freight rates no higher than before the war, "endangers the possibilities of post-war improvement to plant and equipment, better service and sustained employment."

Operating costs, the reply continued, increased more than $1,100,000,000 since 1940, due to increases in wages and prices, the increase in that period in railway labor unit costs being approximately 27 per cent, while the prices of materials and supplies have advanced approximately 29 per cent.

"It is," the railroads said, "only because of the unprecedented increase in the volume of the traffic that has come to them during the war that the railroads have been able to show relatively favorable operating results in spite of these large increases in operating costs, and with no increase in their own charges since 1938, except the increases in freight rates and charges herein authorized from March 18, 1942, to May 15, 1943, and since under suspension, and the small increase in passenger fares authorized by the Commission herein. It is thus clear that when and as the volume of traffic recedes from its present abnormal level and even approaches the pre-war level, the railroads will find themselves in most serious financial difficulties."

It is pointed out that since May, 1943, the month in which the freight rate increases were suspended, the net railway operating income for each month has shown a decrease compared with the corresponding month of the preceding year. This also is true of their net income. In many months, the decreases have been well in excess of 30 per cent.

Less Traffic During Reconversion—With the termination of the European war, the reply went on, the railroads expect a substantial decline in the volume of their traffic, assuming the continuance for some time of the war with Japan. During the reconversion period of 18 to 24 months, which can be expected following the cessation of hostilities in Europe, a continuing decline to a much lower level is expected. Following the reconversion period, an increase in traffic but to a level considerably below the 1944 volume is anticipated.

"A decrease of 20 per cent in their present level of traffic," the railroads added, "with no change in the present level of rates, fares and charges and of wages, prices and other elements of operating cost, would result in an annual net income of about $350,000,000. With a level of traffic 30 per cent below that for 1944, which would still be considerably more than petitioners had in 1929, their net income would be about $100,000,000, and many of the railroads would be in a critical financial condition. With traffic as much as 40 per cent below 1944, there would be a substantial deficit in net income for the railroads as a whole.

Must Spend Huge Sums—"The relatively favorable operating results obtained by the railroads during the war have been due in no small degree to the phenomenal increase in their passenger traffic due to the movement of military personnel, the curtailment of motor vehicle operations because of the gasoline shortage, the increase in national income, and other causes. The railroads cannot hope to retain a reasonable share of the passenger traffic after the war without the expenditure of huge sums for improved passenger motive power and passenger cars.

Old freight equipment that has been kept in service beyond its economic life, through expensive repairs, should also be replaced. Substantial expenditures also will be required to meet specific demands for special types of equipment, and, in order to hold the freight and passenger traffic it will be necessary to make heavy expenditures for improvements of track to permit the necessary increase in speed and regularity of performance. Many other expenditures for general rehabilitation will have to be made.

"The foregoing recital indicates the principal considerations upon which petitioners rely in support of this motion, namely, (1) that under the present level of rates and operating costs a small decrease in their present volume of traffic will seriously impair the ability of the railroads to provide adequate and efficient railway transportation service, and (2) that their present traffic is abnormal, is due to war conditions and is certain to shrink substantially upon the termination of the war in whole or in part.

"Petitioners should not be forced to wait until that shrink comes before being permitted to avail themselves in full of the slight increases in their freight rates and charges heretofore authorized herein."

Jobs Depend on Earnings—The reply also pointed out that one of the most serious problems with which our country will be faced upon the termination of the war will be that of guarding against large scale unemployment.

"The railroads," the reply added, "should contribute and are anxious to be in a position to contribute toward the solution of that problem instead of being compelled to add to its difficulties through radical reductions in their purchases of materials and supplies and curtailment of their forces necessitated by inadequate earnings."

Finds Two Roads at Fault in Accidents

I. C. C. calls protection inadequate; wants a block system installed

In two recently released reports of train accident investigations conducted by the Interstate Commerce Commission under the supervision of Chairman Patterson, each involving a collision between a passenger train and a freight, the railroads have been held at fault for failure to provide adequate safeguards for the movement of trains, and establishment on the lines involved of "an adequate block system" has been recommended.

Train Order Operation—One investigation dealt with a rear-end collision at 9:28 p. m. on August 27 on the Chicago, Milwaukee, St. Paul & Pacific at Tripp, S. D., on the line between Mitchell, S. D., and Sioux City, Iowa. In this case a standing 53-car extra freight train was struck in the rear by eastbound passenger train No. 116, consisting of a locomotive, one mail-express car, one baggage car, one coach, and one sleeping car, all of steel-underframe construction. The passenger train was moving about 30 m.p.h. when it collided with the freight. Both trains remained on the track, and damage was confined to the passenger engine and caboose and two rear cars of the freight. One person carried under contract was killed and two passengers and one employee were injured.

Trains in the territory involved were operated by timetable and train order, and there was no block system in use. "The only provisions for spacing following trains was by the time-interval method enforced by operators at open stations, and by fusees dropped by flagmen. The rules required that the following train be spaced at least 10 minutes behind the preceding train." In this case, however, a train order had been issued to both trains giving the extra freight authority to proceed ahead of the passenger until overtaken, but this order did not restrict the movement of the following train, which thus was authorized to operate at the maximum authorized speed of 60 m.p.h. until it reached a point where speed had to be reduced to enable it to stop at Tripp, where both trains involved in the accident were required by another order to meet a westbound train.

Got Stop Signal Too Late—The extra freight reached Tripp about 33 minutes before the collision occurred and stopped on the main track between the siding switches. The flagman said he proceeded to the rear immediately and placed two torpedoes on the track about 2,800 ft. back of the caboose. He was returning to his train when he saw the reflection of the headlight of the following train. He signaled the approaching train to stop, using a lighted red fusee. The engineman on the passenger train asserted their train exploded no torpedoes, and that no warning signal was visible to them until they were about 800 ft. from the

rear of the standing freight. The engineer then moved the brake valve to emergency position, but the distance was insufficient to stop the train.

The report pointed out that "the book of operating rules of this carrier contains manual block rules which provide, among other things, that a following train may be permitted to enter a block occupied by a proceeding train, other than a passenger train, under train order and clearance from authority indicating that the block is occupied. Under this authority a following train is required to proceed in such manner that it can be stopped short of a preceding train. If these rules had been in effect in the territory involved the crew of the following train would have received definite information that the preceding train was occupying the main track within the same block. However, under an adequate manual block system a passenger train would not be permitted to enter an occupied block, and had such a system been in effect this accident would not have occurred."

In Manual Block Territory—The second investigation dealt with a head-end collision at 8:05 a. m. on August 30 on the Chesapeake & Ohio near Walbridge, Ky., a station on that road's single-track Big Sandy subdivision about 28 miles south (east by timetable designation) of its junction with the main line near Ashland, Ky. Again a standing freight train was struck by a passenger train, and in this case one employee was killed and 68 passengers and 7 railway, postal and express agency employees were injured. This accident occurred in a dense fog on a 4 deg. 35 min. curve.

In the territory involved trains were operated by timetable, train orders and a manual block system. The westbound freight, Second No. 85, which consisted of a locomotive, 113 cars and caboose, was given a clearance form at Chapman, a station 3.78 miles east of the point of collision, which authorized it to proceed on its timetable authority to Louisa, the next open station, 4.32 miles beyond the point of collision. The eastbound passenger train, No. 36, which consisted of an engine, two mail-express cars, one express car, and four coaches, all of steel construction, received a clearance form at Louisa authorizing it to proceed to Chapman on its timetable authority but requiring it to meet Second No. 85 in the block.

Tonnage Trains Held Main Track—Under the rules governing operations in this territory, a train admitted to a block under authority of such a clearance form could proceed at maximum authorized speed (50 m.p.h. for passenger trains) throughout the block, but would expect to meet an opposing train at Walbridge, the one intermediate siding. As the inferior train, the freight was required to clear the main track at Walbridge not later than 7:44 a. m. It arrived at a point about 2,100 ft. east of the east siding switch at 7:41 a. m. and stopped there, since it was customary for such full tonnage trains to remain on the main track while opposing trains took the siding. The front brakeman said he proceeded ahead of his train about 4,600 ft. and placed two torpedoes on the rail, then returned about 1,400 ft., at which point he observed No. 36 approaching and gave stop signals with a lighted red fusee.

As No. 36 was approaching Walbridge the speed was about 25 m.p.h. When the torpedoes placed by the freight's flagman were exploded, the engineer of No. 36 made a service brake pipe reduction, and the train proceeded at about 20 m.p.h., prepared to stop if flagman's signals were seen. No flagman's signals were seen, however, and since Second No. 85 was not on the siding at Walbridge, the only siding within the block, the engine crew on the passenger train thought the portion of the block ahead was clear, and so proceeded. Due to poor visibility resulting from fog, they first became aware of the standing freight when its headlight reflection was seen at a distance of a few hundred feet. The brake valve was moved to emergency position, but the collision occurred before the brakes became effective.

No. 36 was moving about 30 m.p.h. when the accident occurred. The engines of both trains were derailed and badly damaged and the first car of the passenger train was slightly damaged.

Meeting Point Not Specified—The commission's report commented as follows: "Under the manual block rules in effect in this territory, opposing movements within a block are authorized by the issuance of a clearance form which contains information that trains are to meet within the block. The clearance form does not specify at what siding intermediate to open block offices the trains are to meet and does not restrict the authority of the superior train to proceed if the inferior train has not arrived at the intermediate siding. In the case under discussion, the crew of the superior train had only indefinite information as to the movement of the inferior train, and the crew of the inferior train had no information concerning the movement of the superior train other than the schedule in the timetable, although the superior train was about 16 min. late on its schedule at Louisa.

"It was a long-standing practice on this line for a heavy freight train, such as the inferior train, to hold without train order authority the main track at a meeting point with a passenger train, and the crew of the inferior train was following the practice in this case. The weather was extremely foggy, there was no train order issued to establish a meeting point between the trains, and the manual block system in use provided no protection for the movement of these trains. Under these conditions the only protection afforded in this case was flagging signals given by a member of the crew of the inferior train, and the flagging signals were not seen by the crew of the passenger train.

"If an adequate block system had been in use in this territory, these opposing trains would not have been permitted to occupy the same block simultaneously, and this accident would not have occurred," the report concluded.

* * *

Poster No. 254, October Installment of the "All the Year-Every Year Safety Program," Which Is Now Being Distributed by the Committee on Education, Safety Section, A. A. R.

A. A. R. Board Meeting

Directors of the Association of American Railroads, meeting in Washington, D. C., on September 29, appointed three regional committees to report on what should be done with respect to taking over the sleeping-car and parlor-car operations now conducted by the Pullman Company. Also, two new members of the board were elected—Gustav Metzman, president of the New York Central, who succeeds the late F. E. Williamson, and F. G. Gurley, president of the Atchison, Topeka & Santa Fe, who succeeds E. J. Engel.

Office of Defense Transportation representatives at the meeting were Director Johnson, Deputy Director Young and Homer King, executive assistant to the director. Colonel Johnson discussed the transportation problem which would come with Germany's defeat, pointing out that the shift in traffic to the Pacific coast would be such as had never before confronted the railroads. He expressed the opinion that the German fold-up would bring no drop in traffic as measured by ton-miles; for while the tons carried might decline, the longer hauls to the west coast would hold up the ton-miles.

Gets Show Cause Order on Block Signal Installation

The Interstate Commerce Commission, by Chairman Patterson, on September 28 served a show cause order on the New York Central, as lessee of the Big Four, allowing that road until October 30 to file a formal return to the order giving its grounds, if any, for not being required to install on specified portions of its Ohio division "a suitable block signal, automatic train control, cab signal or other system to provide increased protection."

The order was issued following the commission's investigation of a derailment at Deer Creek, Ohio, on April 7, caused by a train entering an open switch at a high rate of speed, and was based upon a finding that "at the point of this accident, and at other points on the Ohio division, there

are facing point switches over which trains are operated at high rates of speed, and protection is inadequate." The segments of line on which installations would be required if such an order should be issued are: Berwick, Ohio, to Hill Siding; Glen Echo to Springfield Yard; Burt to Fifth Avenue, Columbus; Miami Crossing, Columbus, to East Street, Springfield; and Cold Springs to Drawbridge, Dayton.

Status of U. P. Police Employees

Examiner Claude A. Rice has recommended in a proposed report that the Interstate Commerce Commission amend its outstanding orders defining work as that of employees and subordinate officials to include the work performed by (a) the special agents below the rank of division special agent, and the watchmen, train riders, and guards employed in the special agents department of the Union Pacific, and (b) the depot, freight house, yard, and reservoir watchmen, and guards employed by the Ogden Union Railway & Depot Company.

In making this recommendation the examiner rejected U. P. and Depot Company petitions which had asked that the work of the special agents be excluded for the reason, among others, that the efficiency and loyalty of employees engaged in protective service might possibly be impaired "through membership in a labor union and affiliation with members whom they are directed to report or remove from railroad premises if found drinking liquor, smoking or doing other prohibited acts while on duty." Granting of the petitions was opposed by the National Council of Railway Patrolmen's Unions and the Brotherhood of Railway Clerks. The examiner's recommended finding in this connection is that the commission "is not authorized by the statute to make order grounded on public policy." He also stated that about 4,000 railroad police employees out of an estimated total of 6,000 in the United States are already members of unions affiliated with the American Federation of Labor.

Freight and Passenger Trains Collide on North Western

The "Calumet," fast merchandise train of the Chicago & North Western, ran into the side of a passenger train, occupying a cross-over, at Missouri Valley, Iowa, at 7:30 p. m. on September 28, killing 9 persons, of whom 3 died in a hospital, and injuring 75. Train No. 203, the passenger train, was enroute from Minneapolis, Minn., to Omaha, Neb., and at Missouri Valley was moving from the north-south line and across the right or eastbound track to the left or westbound track.

The Calumet was traveling on the right or eastbound track from Council Bluffs, Iowa, to Chicago and ran into the second car from the locomotive of No. 203, derailing five passenger cars of which three turned over. Automatic train control is in operation on the Chicago & North Western between Council Bluffs and Chicago, while in addition manual cross-over operations at Missouri Valley are protected by the dispatcher and by switch stand lamps and hand signals. According to a preliminary investigation, the brakeman of the passenger train had placed a fusee of the eastbound track prior to the hand throwing of switches and the engineman of the Calumet had made an emergency application of the brakes.

Freight Car Loading

Loadings of revenue freight for the week ended September 30 totaled 912,999 cars, the Association of American Railroads announced on October 5. This was an increase of 14,332 cars or 1.6 per cent above the preceding week, an increase of 2,355 cars or 0.3 per cent above the corresponding week last year, and an increase of 5,713 cars or 0.6 per cent above the comparable 1942 week.

Loading of revenue freight for the week ended September 23 totaled 898,667 cars, and the summary for that week, as compiled by the Car Service Division, A. A. R., follows:

Revenue Freight Car Loading

For the Week Ended Saturday, September 23

District	1944	1943	1942
Eastern	165,856	172,313	163,016
Allegheny	195,083	197,043	186,606
Pocahontas	53,636	56,044	56,412
Southern	123,340	116,003	127,245
Northwestern	141,485	152,768	146,412
Central Western	143,171	138,210	139,605
Southwestern	76,096	74,930	78,131
Total Western Districts	360,752	365,908	364,148
Total All Roads	898,667	907,311	897,427
Commodities			
Grain and grain products	49,832	53,214	47,948
Live stock	21,829	23,657	20,201
Coal	175,177	179,814	171,394
Coke	13,720	14,928	14,019
Forest products	44,029	43,684	50,062
Ore	75,567	87,147	78,134
Merchandise l.c.l.	107,559	102,606	89,865
Miscellaneous	410,954	402,261	425,804
September 23	898,667	907,311	897,427
September 16	892,358	902,766	903,099
September 9	825,953	834,670	814,897
September 2	898,450	901,075	887,960
August 26	905,724	904,057	899,405
Cumulative Total, 39 Weeks	32,507,934	31,508,394	32,239,824

In Canada.—Carloadings for the week ended September 23 totaled 74,397 as compared with 74,871 for the previous week, and 72,874 for the corresponding period last year, according to the compilation of the Dominion Bureau of Statistics.

Total for Canada	Total Cars Loaded	Total Cars Rec'd from Connections
Sept. 23, 1944	74,397	37,919
Sept. 16, 1944	74,871	38,331
Sept. 9, 1944	65,905	35,745
Sept. 25, 1943	72,874	40,548
Cumulative Totals for Canada		
Sept. 23, 1944	2,644,909	1,459,012
Sept. 25, 1943	2,479,676	1,518,795
Sept. 26, 1942	2,440,950	1,285,393

I. C. C. Service Orders

Restrictions on reconsignment and diversion of refrigerator cars loaded with potatoes, other than sweet, have been made effective October 4 by the Interstate Commerce Commission's Service Order No. 240, on the ground that such cars are being reconsigned or diverted excessively, affecting the car supply situation. The order applies both to intrastate and interstate commerce, and to shipments originating on or after the effective date. It requires carriers not to allow more than two reconsignments or diversions of such cars before arrival at destination (or switching limits thereof), and not to permit at destination more than one change in name of consignor or consignee or of place of unloading, or both if included in a single order.

Effective October 4, Service Order No. 180, as amended, has been vacated and superseded by Revised Service Order No. 180, under which the same sliding scale demurrage charges applicable to refrigerator cars held beyond free time are retained, but a provision is added to make the order applicable to cars held for loading or unloading and "to detention to any refrigerator car held for loading or unloading at any inland point or at any port, whether for domestic loading or unloading or for transshipment by water."

The provisions of Service Order No. 224, limiting icing and reicing of certain refrigerator cars, have been suspended as to all affected commodities and territories except potatoes originating in sections of Oregon and Idaho designated in General Permit No. 6 under that order, effective October 2.

Frank McManamy Dies

Frank McManamy, a member of the Interstate Commerce Commission from 1923 until 1939, died after a long illness at his home in Daytona Beach, Fla., on October 3. He was 74 years old. When he left the commission in 1939, after President Roosevelt had appointed Commissioner J. Haden Alldredge as his successor, Mr. McManamy closed a 28-year career in government service, having become associated with the Bureau of Locomotive Inspection as assistant chief inspector in 1911.

After leaving the commission Mr. McManamy served as a member of the Harriman Memorial Medal Committee of Award. Also, he served for some time as trustee of the Chesapeake & Ohio and Pere Marquette stock holdings in the National Carloading Corporation, a freight forwarder.

Mr. McManamy's last term on the commission expired on December 31, 1937, but President Roosevelt waited until 1939, to make the Alldredge appointment, thus leaving Mr. McManamy to carry on for nearly a year and a half under that Interstate Commerce Act provision which stipulates that an incumbent shall remain in office until his successor qualifies. Cmmissioner Alldredge was sworn in on May 1, 1939. Mr. McManamy, who retained his membership in the Brotherhood of Locomotive Firemen & Enginemen, had been regarded as a commissioner who understood labor's problems; and the President's failure to reappoint him was protested by the railway labor organizations, who were appeased a couple of months later when Mr. Roosevelt appointed the present commission chairman, William J. Patterson, to succeed former Commissioner B. H. Meyer.

Mr. McManamy was born at Fallen Timber, Pa., on September 3, 1870, and was educated at normal school and Traverse City (Mich.) Business College. After serving from 1911 until 1913 as assistant chief inspector of the Bureau of Locomotive Inspection, he was promoted to chief inspector, remaining in that position until 1918. During the 1918-1920 period he was assistant

director of transportation for the United States Railroad Administration; and from 1920 until 1923, the chairman of its committee on design of standard locomotives and cars, and in charge of construction and maintenance of all railroad equipment. As noted above, Mr. McManamy was a member of the I.C.C. from 1923 until 1939; and he served also as chairman of the commission's committee on safety appliance rules. In addition to his membership in the B. of L. F. & E., Mr. McManamy was a member of the American Society of Mechanical Engineers, and the Traveling Engineers Association.

Forecast 0.9 Per Cent Rise in 4th Quarter Loadings

Freight car loadings in the fourth quarter of 1944 are expected to be slightly above actual loadings in the same quarter in 1943, according to estimates compiled by the 13 Shippers' Advisory Boards.

On the basis of those estimates, loadings of the 28 principal commodities will be 9,531,701 cars in the fourth quarter of 1944, compared with 9,442,744 actual car loadings for the same commodities in the corresponding period in the preceding year,

Shippers' advisory boards	Actual loadings fourth quarter 1943	Estimated loadings fourth quarter 1944	Per cent Increase
New England	194,206	180,477	7.1d
Atlantic States	983,118	1,046,401	6.4
Allegheny	1,159,955	1,239,137	6.8
Ohio Valley	1,151,101	1,159,185	.7
Southeast	989,294	998,891	1.0
Great Lakes	698,947	724,796	3.7
Central Western	355,243	374,204	5.3
Mid-West	1,236,743	1,241,979	0.4
Northwest	758,623	670,250	1.7d
Trans-Missouri-Kansas	457,223	472,400	3.3
Southwest	701,938	635,283	9.5d
Pacific Coast	439,189	458,315	4.4
Pacific Northwest	317,164	330,383	4.2
Total	9,442,744	9,531,701	0.9

or an increase of nine-tenths of one per cent. Ten of the thirteen boards estimate an increase in carloadings for the fourth quarter compared with the same period in 1943, but three estimate decreases.

The table shows actual loadings for each district in the fourth quarter of 1943, the estimated loadings for the fourth quarter of 1944, and the percentage of increase or decrease.

The 13 boards expect an increase in the loading of 14 of the commodities listed, and a decrease in 14. Among those showing the increases are the following: Agricultural implements and vehicles other than automobiles, 28.4 per cent; citrus fruits, 11.7 per cent; other fresh fruits, 18.1 per cent; manufactures and miscellaneous, 9.5 per cent; hay, straw and alfalfa, 6 per cent; coal and coke, 4.8 per cent; all canned goods, 4.8 per cent; fertilizers of all kinds, 4.2 per cent; fresh vegetables other than potatoes, 3.9 per cent, and cottonseed and products except oil, 3.6 per cent.

Commodities for which decreases are estimated and the amount of the decrease include the following: Cement, 14.9 per cent; potatoes, 14.5 per cent; petroleum and petroleum products, 12.8 per cent; ore, 8.8 per cent; grain, 8.1 per cent; cotton, 6.8 per cent; livestock, 5 per cent; machinery and boilers, 4.8 per cent, and gravel, sand and stone, 4.1 per cent.

Milwaukee Track Foreman Gets Medal of Honor

President Roosevelt has bestowed a medal of honor on Roy A. Powers, 616 Market street, Rockford, Ill., a Chicago, Milwaukee, St. Paul & Pacific track foreman, for his rescue of an aged woman from the path of an approaching passenger train on the Chicago, Burlington & Quincy at Rockford on June 14, 1943. The award was made upon recommendation of the Interstate Commerce Commission, under the Act of February 23, 1905, which provides for bronze medals of honor in recognition of outstanding feats of bravery connected with saving of life upon railroads.

Mr. Powers and the woman he rescued—Mrs. Hulda Swenson, 74 years of age—were both seriously injured, the commission's announcement pointing out that they are "still confined to hospitals, more than one year after the accident."

The rescue occurred about 7 a. m. on the date specified. Mr. Powers was standing near his parked automobile, at the north side of Rockford's Blackhawk avenue and about 30 ft. east of the Burlington main track, when he saw Mrs. Swenson walking westward on the opposite side of the street, about 40 ft. from the track. The approaching train had reached a point about 100 ft. north of the crossing when Mr. Powers saw that the woman was proceeding upon the crossing. He ran after her, stepped over the east rail, seized her by the shoulder, and pulled her backward from between the rails. Both Mr. Powers and Mrs. Swenson fell and were struck by the pilot-sill step at the left side of the locomotive, and Mr. Powers was probably struck also by a locomotive cylinder.

The commission announcement states that 52 medals, including that given Mr. Powers, have been awarded since enactment of the Medals of Honor Act in 1905.

Employee Training Getting Results, Says Metzman

Gustav Metzman, in his first appearance as president before a gathering of New York Central employees, told a class of public relations course graduates at a dinner in Albany, September 21, that though "we have barely scratched the surface in this training program," already "splendid results have been achieved." Daily, he observed, letters of commendation are being received at his office, and the number of complaints, he believes, has lessened. "If this result can be achieved by a training program still in its infancy, think, if you will, what splendid results we can obtain when 100,000 or more New York Central men and women have learned how better to give friendly, courteous and efficient service."

President Metzman (left) Greeting Toastmaster C. H. Carr, Senior Passenger Conductor

Declaring himself a "firm believer in the idea that better and more efficient men and women will make a better and more efficient railroad," President Metzman stated that the New York Central wished to afford "every opportunity to our employees to become more efficient railroad men and women." He had a feeling, he said, that many people are "keeping a small black book to which they will refer after this emergency is over and eliminate those places where proper courtesy was not received."

In his opinion, it is important that all employees "promote good public relations and strive to create good will." This, he said, was true not only of those dealing directly with passengers and shippers, but "of those who work in the shops, in the signal department, the maintenance of way department, the freight houses, in the yards and elsewhere."

Jersey Taxes Are "Crippling" the Railroads

Their taxes "nine times larger, per mile of road, than the average for the entire 48 states," New Jersey is "jeopardizing and crippling its transportation service," William F. Hanlon, assistant general solicitor, Jersey Central Lines, told the Lakewood (N. J.) Kiwanis Club, October 3. "The next-highest state is Rhode Island," he pointed out. Taxes (property and franchise) in New Jersey per road mile are more than twice as high as Rhode Island. They are six times larger than in Massachusetts and Connecticut, nearly eight times larger than in Pennsylvania, the speaker asserted.

Mr. Hanlon charged further that railroad property taxes "are excessive and arbitrary," explaining that when compared with similar property, chiefly along the Jersey City waterfront, "the other property brings at a bona fide sale only about

one-half of what the railroad property is assessed for."

He wished, he said, to correct the "false notion" that the railroads of the state had gone on a "tax strike" from 1932 to 1940. During this period, the speaker noted, New Jersey had received more than $115 million, and the Jersey Central alone had paid about 70 per cent of its taxes through payments amounting to nearly $20 million.

"We were unable to pay the balance without jeopardizing the service to the public and going into bankruptcy," the official said, observing that "this fact in itself should have prompted an investigation by the legislature and the state tax commissioner with a view toward remedying an increasingly serious situation."

Mr. Hanlon stated that when such an investigation was about to get underway, and "the attorney general decided to enter judgment against the railroads and sell them for their delinquent taxes," the Jersey Central was obliged to seek the protection of the bankruptcy court.

"To demonstrate how serious the tax situation still is," the speaker continued, "I would like to point out that although in 1943 we did the biggest business in our history, with gross income of nearly $63 million, only $713,000 was left as profit. That was a rate of return of only one-third of one per cent of our invested capital of $216½ million."

Pullman-Standard Designs New "Day-Nite" Coach

A long-distance railway car that will give overnight coach travelers "chaise longue sleeping comfort" has been designed by the Pullman-Standard Car Manufacturing Company for construction as soon as wartime restrictions are removed, according to Ellis W. Test, assistant to the president in charge of engineering and research. The coach also embodies improvements in luggage handling, washroom facilities and controlled lighting that will give the budget-minded passenger many of the comforts and conveniences of first class travel. Seats will have an extra degree of recline that will enable travelers to assume a comfortable sleeping position. At night the passenger obtains a full-length sleeping surface by pulling down from the back of the seat ahead a large upholstered leg rest.

"Two very important improvements for sleeping comfort are incorporated in our new seats," Mr. Test stated. "First, they are farther apart, giving each messenger an opportunity to stretch out with his feet and legs fully supported at seat level instead of sleeping in a cramped position. Second, the leg support takes the pressure off the back of the knee and thus eliminates the swollen ankles that some people suffer when they sleep with their feet on the present low foot rest."

Window drapes in the coach do double duty by being converted at night into curtains separating each pair of seats. Hung on hinged rods, they are swung out at right angles to the wall and snapped to the back of the seat, giving each passenger a semi-private compartment.

Utilizing the latest advances in illumination, the designers have provided individual

Separating Curtains Are Window Drapes During Day—Leg Rest Swings Down Out of Seat Ahead—Individual Lights Can Be Controlled and Focused to Avoid Disturbing Neighbors

spot-type lights for each seat in addition to the general illumination. "These fixtures throw a cone of light about 30 in. in diameter at the reading level," Mr. Test said. "They are individually controlled and focused so that the light from one seat will not disturb the passenger in the adjacent seat, even if he wishes to go to sleep."

Instead of a common washroom at each end of the coach, Pullman-Standard's new car has three private dressing rooms for women and three more for men. Each is a self-contained unit having complete washing, dressing and toilet facilities, including large mirrors. Each group of three dressing rooms has a curtained foyer into which passengers may step to wait for one of the rooms to be vacated.

"This new treatment not only will speed up personal preparations in the morning and evening, but it will also relieve the traveler of the embarrassment of waiting conspicuously in the aisle," Mr. Test remarked.

While the car will be equipped with conventional overhead luggage racks for overnight cases or small handbags, bulky luggage will be stored in an out of the way compartment by attendants. At terminals this luggage will be transferred directly to the outside without being piled up in the aisle first. Passengers thus will be able to disembark as soon as the train stops instead of waiting for baggage to be cleared away.

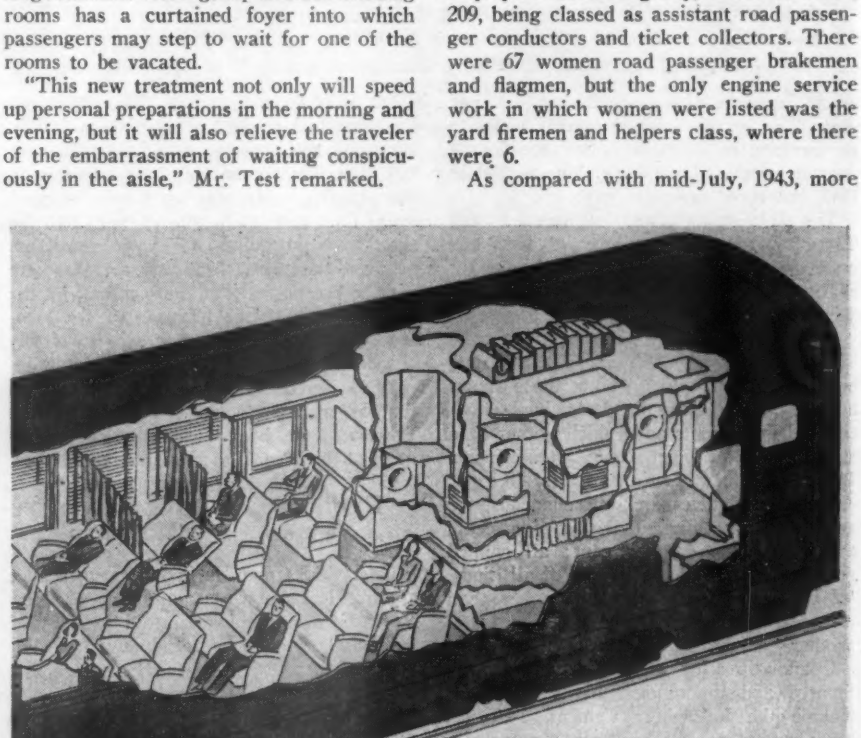
Railroads Add More Women to Their Payrolls

During the three-month period from mid-April to mid-July this year the number of women employed by Class I roads continued to increase, according to the most recent figures of the Bureau of Transport Economics and Statistics of the Interstate Commerce Commission, and women employees made up 8.07 per cent of all employees of such roads at the most recent reporting date, as compared with 7.94 per cent in mid-April and 6.87 per cent in mid-July last year.

The total number of women employed in mid-July, this year, was 116,425, as compared to 112,063 in mid-April, as noted in *Railway Age* of July 1, page 49. The total of all employees likewise increased in this three-month period, being 1,442,887 in mid-July as compared to 1,412,184 in mid-April and 1,390,810 in mid-July last year.

Feminine Trainmen—The number of women in train and engine service continued to show a small but regular increase, there being 301 in this category in mid-July as compared to 264 in mid-April. Women now make up 0.34 per cent of all employees of this group, most of them, 209, being classed as assistant road passenger conductors and ticket collectors. There were 67 women road passenger brakemen and flagmen, but the only engine service work in which women were listed was the yard firemen and helpers class, where there were 6.

As compared with mid-July, 1943, more



Cutaway Drawing Shows Three Rest Rooms with Their Curtained Antechamber —Baggage Is Stored Overhead and Removed from the Car Through a Chute Without Interfering with Disembarking Passengers

women were employed by Class I roads in every general division of employment except maintenance of way and structures, where the decline was from 2,879 to 2,746. In mid-April of this year 2,741 were reported in this category. Substantial increases were reported in the 12-month period in three general divisions of employment—professional, clerical and general, where the increase was from 63,673 to 77,010; maintenance of equipment and stores, up to 23,333 from 20,024; and transportation other than train, engine and yard, where the increase was from 8,761 to 12,948.

Coach Cleaners 46% Women—As has been true when previous reports have been compiled, more women have railroad employment, outside the so-called white-collar or clerical occupations, as coach cleaners than in any other one type of work. In this category the number of women employees increased from mid-April's 6,388 to 6,526 in mid-July, but the percentage of all coach cleaners who were women showed a decrease in the same period, the change being from 46.61 per cent in mid-April to 45.5 per cent. Minor changes, some increases and some decreases, were reported in the employment of women in the skilled trades, where their representation, on a percentage basis, generally continued very small. In the clerk-telegraphers and clerk-telephoners class there was a substantial increase in the number of women reported, the mid-July total being 1,856, or 17.25 per cent of all employees in this class, as compared to the mid-April total of 1,586.

Asks Lower Rates to Aid Decentralization of Industry

The Senate special committee investigating industrial centralization, named under Senate Resolution 190, with Senator McCarran, Democrat of Nevada, as chairman, has made public a special report in which it recommends that Congress "freeze" all government-owned war plants located in eleven eastern and northeastern states immediately upon the end of the war with Germany, the argument, according to Senator McCarran, being that, "if the government-owned war plants in these 11 states that house the evil of centralization [of industry] were reconverted to peacetime production these 11 states can destroy the industry in the rest of the country and reduce the West and the South to misery."

Accompanying the report is a chart called "Some Simple Facts on Reconversion," in which are set forth summaries of the committee's conclusions and recommendations, segregated by geographical regions. Referring to the 17 states west of the eastern borders of Texas, Oklahoma, Kansas, Nebraska, South Dakota and North Dakota—this region, according to the report, being underdeveloped and underpopulated—is a 4-point program for postwar industrial expansion, one point being worded as follows: "Discriminatory freight rates must be altered to give the new industries in this region an equal chance on the nation's markets with the industries of the eastern states."

Referring to another geographical group of 10 southern states south of the Potomac and Ohio rivers and east of the Mississippi, but excluding Florida and including Arkansas—this region, according to the report, being underdeveloped—is a 3-point reconversion program reading in part as follows: "Changes in freight rates must be pressed immediately to make it possible for new industries to meet competitive price on the nation's markets. Precautions must be taken not to sacrifice the raw materials producers in this region, as well as the 17 western states, to the policy being pressed in industrial circles to make this nation primarily an exporter of producers' goods and a large-scale importer of raw materials."

In addition to these so-called underdeveloped sections and the group of 11 states — stretching from Illinois through Massachusetts, inclusive, but omitting Indiana—which are termed in the report overpopulated and overdeveloped, the committee has classified a group of 10 scattered states (Maine, New Hampshire, Vermont, Indiana, Wisconsin, Minnesota, Iowa, Missouri, Louisiana and Florida) as exhibiting "relatively balanced development."

Justice Dept. Seen Ousting the I. C. C.

(Continued from page 555)

discussing national transportation conditions at the business session of the Atlantic States Shippers Advisory Board, Warren C. Kendall, of Washington, D. C., chairman of the Car Service Division of the Association of American Railroads, reported that the freight car supply is tighter than it has been in many years. "I am not saying there is a car shortage as that term is generally used and understood, for that is not the case," he declared. "But due to several unusual and perhaps unprecedented complications which affect transportation by rail, the margin between demand for cars and the supply is narrower in nearly every type of car than at any time since 1922."

Some of the factors which have brought about this situation, Mr. Kendall said, are the increasing demands of the armed forces, the record-breaking movements of grain, fresh fruits and vegetables and bituminous coal, and the transfer to the rails of considerable traffic which other forms of transportation cannot carry due to war conditions. In spite of this, he predicted that, with the additional equipment installed since the first of the year and the prospective delivery of cars and locomotives now on order, "it is probable that the railroads will have sufficient equipment to meet any requirements which can now be foreseen." Mr. Kendall emphasized the necessity of continued cooperation on the part of the shippers and receivers of freight in getting maximum utilization out of every car.

Heavy Traffic When Peace Comes—Charles H. Vayo, of Rochester, N. Y., president of the Atlantic States Board, warned that there will still be a big transportation job ahead after the surrender of Germany. "With victory in Europe," Mr. Vayo said, "there will be a diversion of military traffic to the Pacific area, with a considerable increase in the length of the average haul and a substantial increase in the turn-around time of cars. This job alone will place a tremendous burden on our transcontinental lines. It can be accomplished only through the complete cooperation of the railroads, the shippers and receivers of freight and all others concerned with transportation."

Others who discussed transportation problems include R. W. Brown, Philadelphia, Pa., president of the Reading; Frank E. Guy, of New York, general traffic manager of the Universal Atlas Cement Company; H. M. Frazer, of New York, general traffic manager of the F. W. Woolworth Company; Charles J. Fagg, of Newark, N. J., president of the Newark Central Warehouse Company; Charles M. Naylor, of Towson, Md., traffic manager of the Black & Decker Manufacturing Co.; Frederick W. Burton, director of the Department of Transportation of the Rochester Chamber of Commerce; Henry G. Elwell, of Elizabeth, N. J., president of Elwell, Phillips & Co.; and A. P. Stevens, of New York, district manager of the Car Service Division of the Association of American Railroads.

Freight carloadings in the Atlantic States Board territory for the last quarter of 1944 are expected to be 6.4 per cent above the actual loadings in the corresponding period of 1943, according to estimates announced at the meeting, and freight carloadings of the principal commodities will total 1,046,401 during the next quarter of this year as compared with 983,118 during the same quarter last year. The most substantial increases, it was predicted, will take place in four commodities—fresh fruits, which are expected to go up 100 per cent; hay, straw and alfalfa, 35 per cent; fresh vegetables, 27.5 per cent, and grain, 22.9 per cent. Decreases of 30 per cent in cement and 25 per per cent in potatoes are anticipated.

Train Communication Night at N. Y. Railroad Club

"Train Communication on the Pennsylvania Railroad" will be discussed by W. R. Triem, P.R.R. general superintendent of telegraph, when the New York Railroad Club has its first fall session, October 19, at 7:45 p.m., in the Engineering Societies Building, New York.

Dr. L. O. Grondahl, director, research and engineering, Union Switch & Signal Co., will describe the "Union Train Communication System."

Stereopticon illustrations will accompany the addresses.

August Truck Traffic

Motor carriers reporting to American Trucking Associations, Inc., transported in August, 2,231,005 tons of freight, an increase of 7.8 per cent above the 2,069,969 tons reported for July and 0.8 per cent above the August, 1943, figure of 2,214,047 tons. The A. T. A. index, based on the 1938-1940 average monthly tonnage of the reporting carriers, was 187.4 for August as compared with 174.2 in July.

The foregoing figures, according to the A. T. A. announcement, are based on reports from 282 carriers in 44 states. Truck-

ers in the Eastern district reported tonnage increases of 9.3 per cent over July, and 0.9 per cent over August, 1943. In the Southern region there was a 12.8 per cent increase over July, but a 3.5 per cent drop under August, 1943. Increases in the Western district were 2.7 per cent over July and 2.6 per cent over August, 1943.

Transportation Institute Proceedings Now Available

Verbatim printed proceedings of the "Institute of Transportation,"—held jointly by New York University and the Transportation Association of America at New York on May 23-24 and reported in the *Railway Age* of May 27, page 1024—are now available in a 200-page paper-bound book, issued as a supplement to the Law Quarterly Review of New York University. Copies may be obtained from the Transportation Association of America at 475 Fifth Avenue, New York 17. Single copies are priced at $2.50; 10 to 25 copies, $2 each; 25 to 50 copies, $1.50 each; and 50 or more copies $1 each. The price to libraries is $1.50 for a single copy. Papers included in the printed report are the following:

Introduction, by Dean Arthur T. Vanderbilt
Socialized Transport and the Future of Enterprise, by Professor Herbert B. Dorau
Appraisal of Congressional Transportation Policies, by Kennth F. Burgess
The Fundamental Interest of the Shipper, by Charles W. Braden
Equalization of Government Subsidy to Transportation Agencies, by Professor William J. Cunningham
Regulated Monopoly or Competition?, by Professor Sidney L. Miller
The Principle of Common Ownership, by Paul W. Brown
Political Regulation of Transportation, by John B. Keeler
The Public Interest, by Henry A. Palmer
Regulatory and Anti-Trust Statutes, by John S. Burchmore
Common Ownership and Operation of Transportation Facilities in the Petroleum Industry, by C. R. Musgrave
Post-War Coordination of Bus and Air Transportation, by Arthur Middleton Hill
Monopoly or Competition in International Air Transport, by J. E. Slater
Integrated Ownership and Operation of Common Carriers, by Judge R. V. Fletcher
A National Policy to Attract Private Investment in Railroads, Henry S. Sturgis
Movements of the War, by Henry J. Taylor
The Future of Our Merchant Marine, by Rear Admiral Emory S. Land

Personnel Needs Now 91,000

Personnel needs of the railroads at the beginning of September were 91,000 compared with 94,000 on August 1 and 107,000 on September 1, 1943, according to an estimate made by the Railroad Retirement Board. The decrease of 3,000 from the preceding month continued the decline in needs which has taken place since the beginning of April, when the estimated industry total was 108,000. For the first time since the reports on needs and surpluses were inaugurated, needs were smaller than on the corresponding date of the preceding year.

The estimate for the industry as of September 1 is based on a tabulation of reports from 189 employers who reported shortages of 86,000 workers. Included in the reports was one from a large eastern railroad which placed its shortages as 42 per cent less than on August 1. For the purpose of estimating the total shortage in the industry, the Board assumed that the September 1 personnel needs for this employer were reported on the same basis as those for the preceding month. However, if the needs for this railroad were excluded from the totals for both months, the needs of employers reporting in both months would show an increase of about 4.5 per cent instead of a decrease. The total needs for additional workers in the industry estimated on this basis would be several thousand larger than on August 1 instead of a few thousand lower, and the total additional needs for the Great Lakes and Northeastern areas combined would be almost the same for September 1 as for August 1 instead of 13 per cent less.

Data from employers reporting in both months, including the railroad mentioned above, indicate that needs increased in four of the occupational groups and decreased in the other three. The number of jobs open for trainmen and enginemen increased by almost 16 per cent. For executive, professional, and clerical personnel, and helpers and apprentices, shortages were 3 per cent greater.

The number of additional skilled journeymen needed was 7 per cent smaller on September 1 than on August 1 and the number of additional laborers needed was about 5 per cent less. Because laborer needs constitute more than half the total, the reduction in needs for such workers was sufficient to effect a reduced total.

Personnel News of Employers Reporting for Both August and September*

September 1, 1944

Occupational group	Number	Needs reported: Per cent of total	Needs reported: Per cent of August
1. Executives, professional men, telegraphers and clerks	3,716	4.3	102.9
2. Trainmen and enginemen	7,570	8.8	115.9
3. Skilled trades journeymen	12,883	15.0	92.7
4. Skilled trades helpers and apprentices	12,196	14.2	102.9
5. Laborers	47,327	55.5	94.7
6. Attendants, cooks, porters, and waiters	1,112	1.3	98.1
7. Miscellaneous	813	0.9	124.3
Total	*85,617	100.0	97.7

* The total of personnel needs reported in this table excludes the needs of those employers who did not also report for August.

In the three western areas, needs of employers reporting in both August and September increased. In the Northwest, the increase was 20 per cent while in the Far West and the Southwest there were 7 per cent more vacant jobs. In all three of these areas the largest increases were in shortages of trainmen, enginemen and laborers. In the Northwest there was also a substantial rise in the number of helpers and apprentices needed.

In the other three areas, fewer additional workers were needed than on the first of August. In the Southeast due to an easier situation with respect to laborers, the reduction in needs was 6 per cent. In the area around the Great Lakes and the Northeast, the decreases as reported were 16 per cent and 10 per cent, respectively.

8 Mos. Net Income Was $451,000,000

(*Continued from page 554*)

$330,082,765 compared with $407,764,592 in the same period of 1943. Their August net railway operating income amounted to $42,560,458 compared with $60,656,934 in August, 1943.

Gross in the Eastern district in the eight months totaled $2,752,560,234 an increase of 4.7 per cent compared with the same period in 1943, while operating expenses totaled $1,915,681,908 an increase of 15 per cent.

Class I roads in the Southern region in the eight months had an estimated net income of $72,000,000 compared with $98,480,559 in the same period of 1943. For August, they had an estimated net income of $7,300,000 compared with $10,008,047 in August, 1943.

Those same roads in the eight months had a net railway operating income of $114,826,578 compared with $141,681,082 in the same period of 1943. Their August net railway operating income amounted to $13,347,624 compared with $15,825,768 in August, 1943.

The eight-months gross in the Southern region totaled $894,135,780 an increase of 3.7 per cent compared with the same period of 1943, while operating expenses totaled $552,850,390 or an increase of 13.9 per cent.

Outcome in the West—Class I roads in the Western district in the eight months had an estimated net income of $182,000,000 compared with $264,614,214 in the same period of 1943. For August, they had an estimated net income of $29,000,000 compared with $37,453,611 in August, 1943.

Those same roads in the eight months had a net railway operating income of $313,665,570 compared with $422,851,495 in the same period of 1943. Their August net railway operating income amounted to $45,455,809 compared with $55,788,385 in August, 1943.

Gross in the Western district in the eight months totaled $2,634,597,301 an increase of 7.7 per cent compared with the same period in 1943, while operating expenses totaled $1,672,792,495 an increase of 18.4 per cent.

CLASS I RAILROADS—UNITED STATES

	Month of August 1944	Month of August 1943
Total operating revenues	$836,184,024	$800,177,331
Total operating expenses	538,490,196	467,256,973
Operating ratio—per cent	64.40	58.39
Taxes	178,059,159	183,987,086
Net railway operating income (Earnings before charges)	101,363,891	132,271,087
Net income, after charges (estimated)	63,000,000	84,471,665
Eight Months Ended August 31, 1944		
Total operating revenues	$6,281,293,315	$5,937,652,210
Total operating expenses	4,141,324,793	3,564,265,297
Operating ratio—per cent	65.93	60.03
Taxes	1,249,773,602	1,272,188,314
Net railway operating income (Earnings before charges)	758,574,913	972,297,169
Net income, after charges (estimated)	451,000,000	612,842,733

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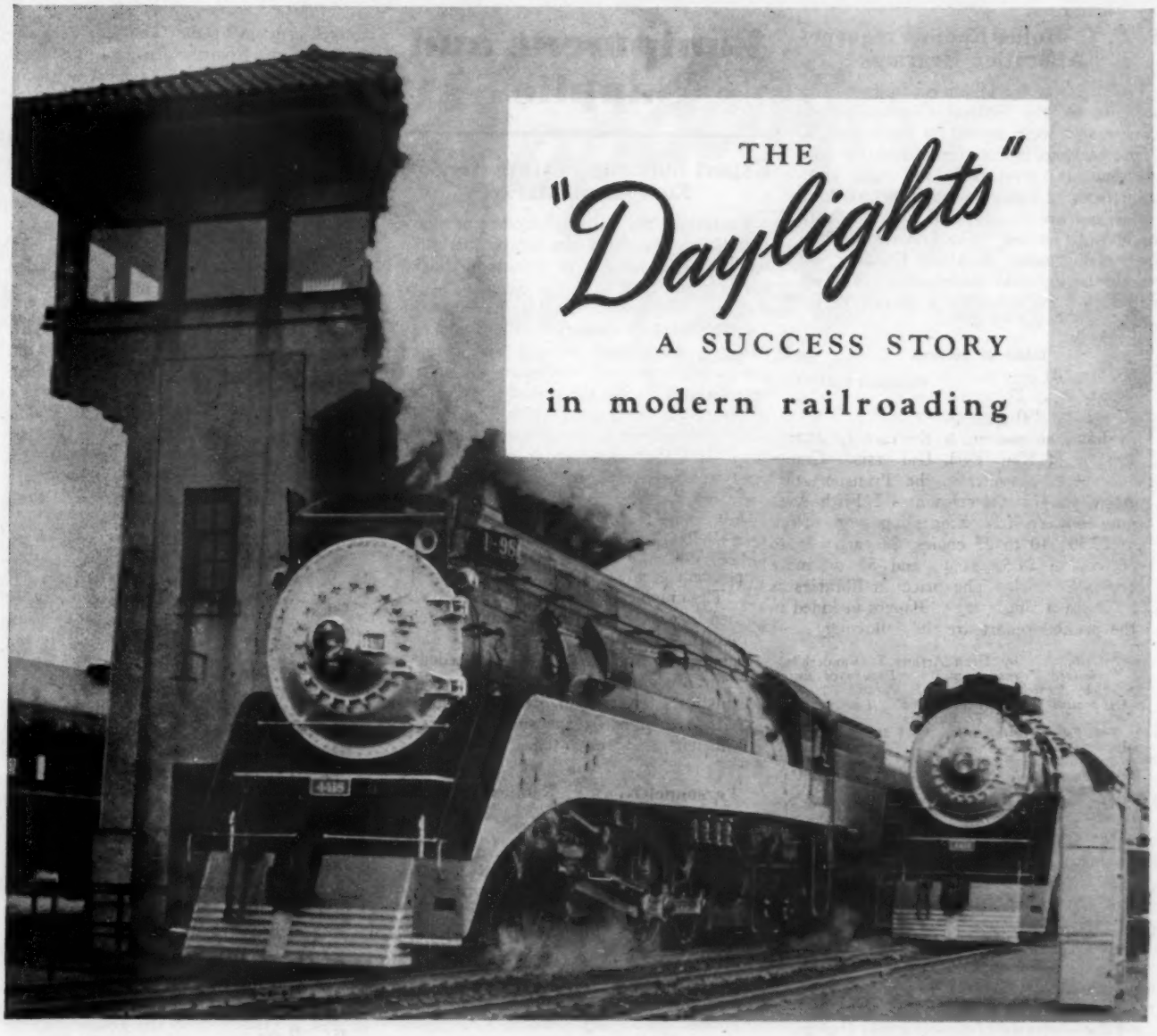

Eight years ago the Southern Pacific placed an order with the Lima Locomotive Works for six high-speed, super-power steam locomotives, like those shown above, for its "Daylight" streamlined trains.

The performance of these 4-8-4s has been so successful that the Southern Pacific has since placed orders for fifty-four additional locomotives of this type.

The experience of the Southern Pacific in building traffic with streamliners powered by these Limas is an excellent example of the opportunities that await railroads in the post-war period when equipment like this again will be available for passenger service.

LIMA LOCOMOTIVE WORKS — LIMA LOCOMOTIVE WORKS INCORPORATED — INCORPORATED, LIMA, OHIO

F. C. C. Holds Radio Frequency Allocation Hearing

Hearings on the allocation of radio frequencies by the Federal Communications Commission were opened on September 28. These hearings include frequencies for non-governmental services in the radio spectrum from 10 kilocycles to 30,000,000 kilocycles and are scheduled to continue until the end of October. The first two days of the hearing were used for bringing out general background information. The remainder of the schedule is shown in the table:

Order of Services

Topic No.	Services	Estimated Date
	Group I	
8	Fixed public services (other than Alaska)	Oct. 3, 4, 5, 6, 7
9	Coastal, marine relay, ship, mobile press, and fixed public service in Alaska	
10	Aviation	
14	Amateur	
6	International broadcast	
	Group II	
1	Standard broadcast	Oct. 10, 11
2	High frequency (FM) broadcast	12, 13, 14, 17
3	Non-commercial educational	
4	Television	
5	Facsimilie broadcast	
7	Other broadcast services	
	Group III	
11	Police, fire and forestry services	Oct. 18, 19, 20, 21, 24
12	Special emergency, provisional and motion picture services	
13	Special services (Geophysical, relay press)	
	Group IV	
15	Industrial, scientific and medical services	Oct. 25, 26, 27, 28, 31
16	Relay systems (program and public and private communications	
17	New radio services	

As indicated in the earlier public notice, upon completion of this testimony the Commission will then again receive evidence from the chairmen of Panels 1 and 2 of the Radio Technical Planning Board concerning the recommendations they have to make for over-all allocations in light of the evidence adduced at the hearing. The Commission at that time will also receive evidence from any other person or group that has recommendations to make concerning over-all allocations. It is estimated that this phase of the hearing will commence November 1.

Western Society of Engineers to Hold Fall Dinner October 9

The Western Society of Engineers will hold its annual fall dinner meeting at Chicago on October 9. Charles Layng, western editor of the *Railway Age*, will be the guest speaker and will discuss Axis Transportation.

WHEN KNIGHTHOOD was recently conferred on E. J. Missenden by King George VI, the general manager of the Southern Railway received warm congratulations from the S. R.'s Home Guard. Sir Eustace's acknowledgment to his staff deemed "the honor one for the Southern Railway as a whole, and we all share in it," records the employee magazine of this road.

Equipment and Supplies

Export Inquiries Feature Current Equipment Market

Featuring the railway equipment market during the third quarter of this year were inquiries for a large volume of freight cars for shipment to South America, Mexico and to France. Long term plans of South American countries calling for expansion of railroad mileage and service and replacement of worn-out equipment materialized during the period in the form of requests for prices for rolling stock, chiefly for export to Brazil and the Argentine. Provided satisfactory arrangements for financing the business can be worked out, this considerable volume of potential orders ranks South America as one of the best markets for American builders in the post-war period, along with China and Europe where huge rehabilitation programs to replace equipment destroyed during the war will be necessary.

During the three month period, July-September, the *Railway Age* reported the Central Railway of Brazil seeking to acquire here 250 75-metric ton ore cars; the Mogyana Railway of Brazil 100 to 200 40-ton meter-gage box cars; the Paulista Railway of Brazil 500 42-metric ton box cars; the Sorocabana Railway of Brazil 250 to 500 lightweight steel box cars of 36 metric tons' capacity and the Argentine State Railways from 500 to 1,500 40-ton meter-gage box cars and from 500 to 1,500 40-ton meter-gage flat cars. The Companhia Vale do Rio Doce, Brazil, ordered eight steam locomotives of 2-8-2 wheel arrangement from the Baldwin Locomotive Works in September.

The Mexican railway modernization program now under way involves an expenditure of $54,000,000 and, besides speeding war traffic, is designed to prepare the country for post-war trade and tourist travel. During the past three months, the Desarrollo Industrial Y Agricola, Mexico, was reported in the market for 110 40-ton box cars, 50 40-ton gondola cars and 50 40-ton hopper cars and the National Railways of Mexico as planning to build 1,000 50-ton box cars in its Aguascalientes shops.

In September, a French supply commission began negotiations to acquire here about 74,500 new freight cars of various types up to 1,300 steam locomotives of 2-8-2 and 2-10-0 wheel arrangement, and passenger-train cars, track and miscellaneous equipment to rehabilitate the country's war-torn railroad system. Contract builders were solicited for prices on the freight cars and the 2-8-2 type locomotives and discussions began with the government regarding the financing and allocation of materials for the project. Included in the freight cars were 37,000 20-metric ton box cars, 25,000 20-metric ton gondola cars, 7,000 40-metric ton flat cars, 3,000 tank cars and 2,500 cabooses.

Other purchases here for export reported in the *Railway Age* during the third quarter included ten 2-8-2 type steam locomotives ordered by the Consolidated Railroads of Cuba from the American Locomotive Company and 22 2-8-2 type steam locomotives ordered by the Portuguese Government Railways from the same builder. In Canada, the Canadian Pacific ordered 750 50-ton box cars from the Canadian Car & Foundry, 200 50-ton overhead refrigerator cars from the National Steel Car Company and 200 70-ton gondola cars from the Eastern Car Company.

Principal domestic freight car purchases reported during the three months were the Alton's order for 1,500 cars, allocated 500 50-ton box cars to the Pullman-Standard Car Manufacturing Company, 250 50-ton gondola cars to the General American Transportation Corporation and 600 50-ton box cars and 150 50-ton hopper cars to the American Car & Foundry Co.; and the Baltimore & Ohio's order for 1,700 cars, allocated 1,000 50-ton hopper cars to the Bethlehem Steel Company, 500 50-ton box cars to the General American Transportation Corporation and 200 automobile cars to the Greenville Steel Car Company. Principal freight car inquiries reported but unfilled at September 30 include the Missouri Pacific's invitation covering 700 40½-ft. 50-ton box cars and 300 50½-ft. 50-ton box cars; and the Wabash inquiry for materials for 600 50-ton new gondola bodies for existing trucks.

Among the larger motive power purchases reported were eight 2-6-6-6 type steam locomotives ordered by the Virginian from the Lima Locomotive Works; ten mallet type steam locomotives ordered by the Baltimore & Ohio from the Baldwin Locomotive Works; 37 Diesel-electric locomotives of various types and sizes ordered by the New York, Ontario & Western from the Electro-Motive division of the General Motors Corporation under a plan designed to effect complete Dieselization of that road; 50 1,000-hp. Diesel-electric switchers ordered by the Chicago, Burlington & Quincy from the Baldwin Locomotive Works; six 5,400-hp. Diesel-electric freight locomotives ordered by the Boston & Maine from Electro-Motive; and eight 1,000-hp. Diesel-electric road locomotives ordered by the New York, Susquehanna & Western from the American Locomotive Company under a plan to completely Dieselize its present passenger service and post-war freight traffic.

During the three month period, the Long Island announced plans to build five steel frame double-deck motor cars and five steel frame trailer cars, the original order for which equipment was placed with the railroad's shops at Altoona, Pa., in September, 1941, and later cancelled when materials for construction of the cars became unavailable, and the New York, Chicago & St. Louis ordered five 70-ft. all steel express-baggage cars from the American Car & Foundry Co. The Wabash entered the market for one baggage-mail car, one baggage car, one coach, one deluxe coach, one coach-buffet car, one parlor-observation car and one diner; the Atchison, Topeka & Santa Fe for 23 mail-baggage and express cars, 43 chair cars, two dormitory-lounge cars, six lunch counter-dining cars and six dining cars; and the Northern Pacific for 24 or 36 lightweight deluxe coaches.

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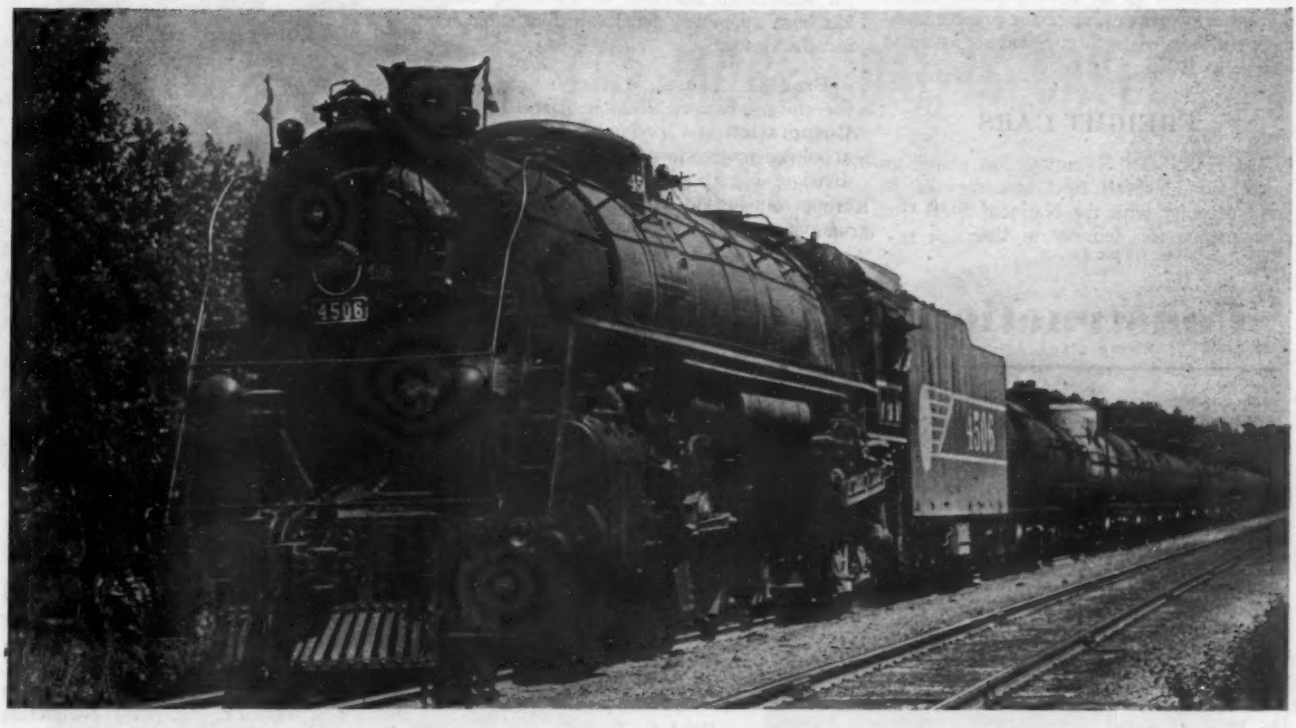
Increased Capacity

FOR FRISCO FASTER FREIGHT 4-8-4's



Franklin Type "E" Locomotive Boosters*
used in both Freight and Passenger Service

Heavy freight and passenger traffic moves fast on the FRISCO, because its 4500 Class 4-8-4 locomotives, used in both kinds of service, have Franklin Type E Boosters.

The Booster saves starting time by providing quicker pick-up. It enables the locomotive to accelerate rapidly to road speed and maintain speed on grades.

By making it possible to haul heavier trains at sustained speeds, it helps to increase the traffic capacity of any line.

These advantages can be secured by any railroad through the application of Franklin Type E Boosters to its locomotives.

*Trade Mark Reg. U.S. Pat Off.

FRANKLIN RAILWAY SUPPLY COMPANY, INC.
NEW YORK • CHICAGO
In Canada: FRANKLIN RAILWAY SUPPLY COMPANY, LIMITED, MONTREAL

The MINNEAPOLIS & ST. LOUIS has authorized the expenditure of $3,500,000 for new cars, locomotives and rail. The program, announced by L. C. Sprague, president, includes two 4,050-hp. Diesel-electric freight locomotives; four 1,000-hp. Diesel-electric road and switching locomotives; 500 steel box cars; 10 aluminum body lightweight box cars; and six stainless steel air-conditioned passenger-train coaches. The order for new rail will consist of steel to lay 32 miles of track, 100 lb. to the yard, complete with angle-bars and other track fastenings. The new purchases will increase to more than $20,000,000 the expenditures made by the Minneapolis & St. Louis for betterment of its rolling stock, tracks and other properties, since the present management, headed by Mr. Sprague, assumed charge in 1935.

FREIGHT CARS

The CANADIAN NATIONAL has placed an order for 1,500 all steel box cars of 50 tons' capacity with the National Steel Car Corporation for delivery in 1945.

Construction

DELAWARE, LACKAWANNA & WESTERN.—This railroad has awarded a contract for the construction of coal, sand and ash handling plants at Elmira and Binghamton, N. Y., to the Ross & White Co.

LOUISVILLE & NASHVILLE.—Division 4 of the Interstate Commerce Commission has conditionally approved this road's proposal to construct a 2.1-mile branch from Drakesboro, Ky., northward into a coal mining area, but has deferred issuance of a certificate pending its decision on an application of the Illinois Central for authority to enter the same area and that carrier's proposal that the two roads build and operate a joint track from Central City to Drakesboro to serve the mines now being developed. The L. & N. has been opposed to the proposal for joint operation, but the division's approval of this application was made subject to the condition that the road should agree to participate in joint construction and operation of the line in the event the division should find it to be in the public interest.

NAVY DEPARTMENT.—The Navy Department has awarded a contract, amounting to $1,336,068, to MacDonald & Kahn, Inc., San Francisco, Cal., for the construction of a classification yard in California. Another contract, amounting to $743,545, has been awarded to the Frederickson & Watson Construction Co., Oakland, Cal., for the construction of a classification yard and lumber storage site in California.

$7,000,000 re-payable on easy terms, has been advanced by the Great Western (England) to enable 3,300 of its employees to buy homes, it has been announced by the Associated British & Irish Railways. On various parts of the system, garden villages have been established as well, to assist the staff in combating the housing shortage.

Supply Trade

The Storage Battery Division of the **Philco Corporation** has been awarded its fifth Army-Navy "E" for continued production achievement.

The **Copperweld Steel Company** has been awarded the Army-Navy "E" for the third time for high achievement in the production of Copperweld wire for war purposes.

Paul R. Dupree, for the past four years traffic manager at Jacksonville, Fla., for the **American Lumber & Treating Co.,** has been appointed general traffic manager for the company.

Fred G. Teufel, district manager of the storage battery division of the **Philco Corporation** in Cleveland, Ohio, has been appointed midwestern sales manager of the division, which includes supervision of offices in Buffalo, N. Y., Pittsburgh, Pa., Cleveland and Cincinnati, Ohio, Detroit,

Fred G. Teufel

Mich., and Chicago. He also has been appointed a member of the management staff at the company's headquarters. Mr. Teufel was employed with the Willard Storage Battery Company for 23 years, including 12 as sales manager, prior to joining Philco in January, 1941.

Royal G. Parks of the Detroit, Mich., office of the accounting firm of Arthur Andersen & Co., has been elected controller of the **National Malleable & Steel Castings Co.**

The **Gould Storage Battery Corporation** has been awarded a second Army-Navy "E" for continuing to maintain the high standards they set when they were originally awarded the Army-Navy "E."

A. J. Townsend, chief mechanical engineer, has been appointed vice-president in charge of engineering for the **Lima Locomotive Works. Henry Barnhart,** manager of the shovel and crane division of Lima, has been appointed vice-president in charge of the shovel and crane division.

F. E. Schaumburg, roadmaster for the Chicago & Northwestern since 1932, has been appointed railroad representative, sales development division, for the **Caterpillar Tractor Company,** Peoria, Ill. Mr. Schaumburg's new assignment will include the analysis and promotion of the use and application of Caterpillar equipment for

F. E. Schaumburg

general off-track railroad construction and maintenance. He began his railroad career as a chainman with the Northern Pacific in 1917 and joined the Chicago Great Western as assistant engineer of maintenance of way in 1924. He transferred to the Chicago & Northwestern in 1929 and was appointed roadmaster in 1932. Mr. Schaumburg is a past-president of the Maintenance of Way Club of Chicago and is a member of the Roadmasters' and Maintenance of Way Association of America.

Frederick H. Eaton, sales engineer, until recently attached to the Washington, D. C., sales office of the **American Car & Foundry Co.,** has been transferred to the company's New York sales office. After graduating from Williams College in 1922, Mr. Eaton took the shop training course at the a. c. f. Berwick, Pa., plant, completing the course in 1925. For the next ten years he was employed in the company's engineering department on the various phases

Frederick H. Eaton

of passenger, freight, mine and industrial car building. He served in the Pittsburgh, Pa., office as sales engineer from 1935 to 1940 and in the St. Louis, Mo., sales offices from 1940 to 1942. From 1942 to 1944 he was attached to the Washington office

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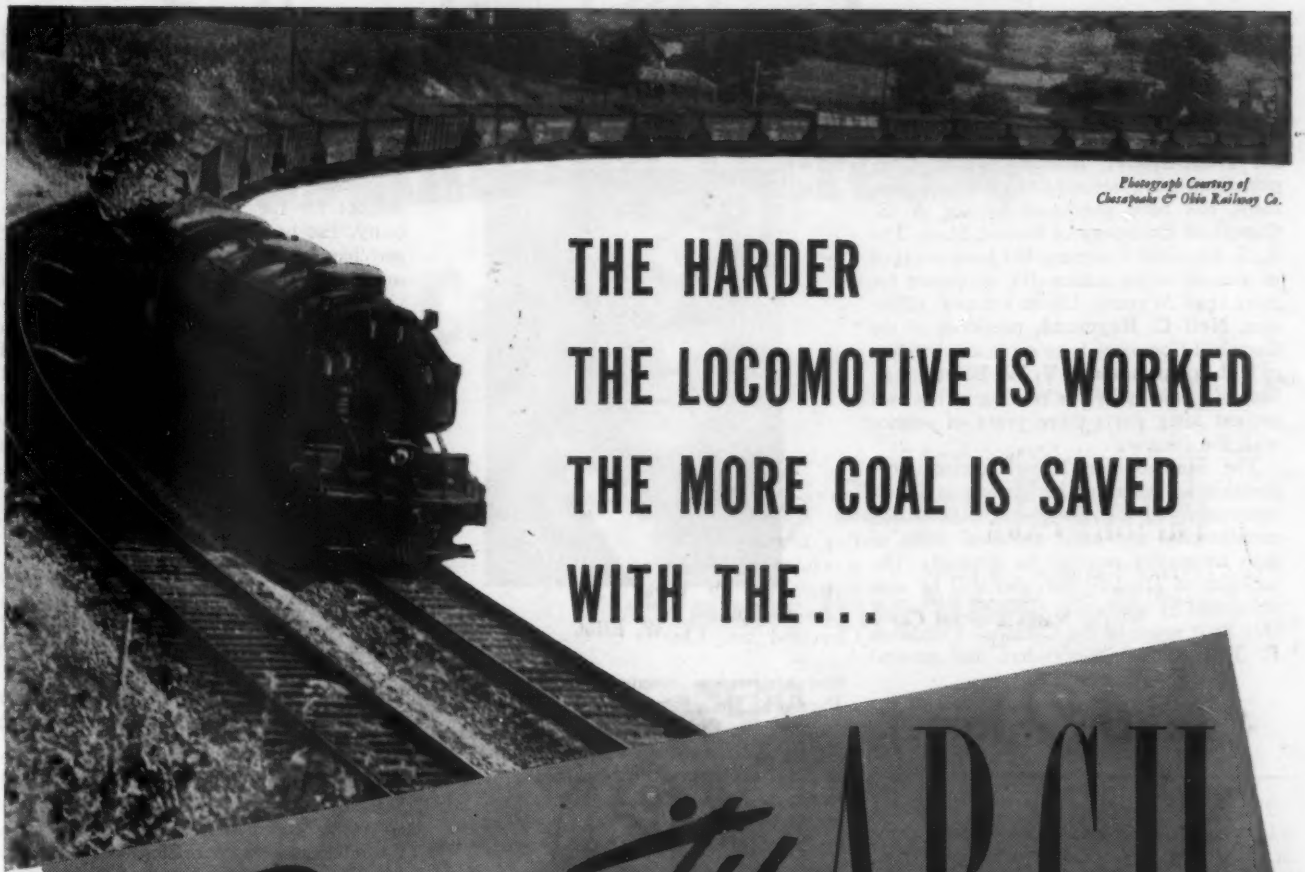
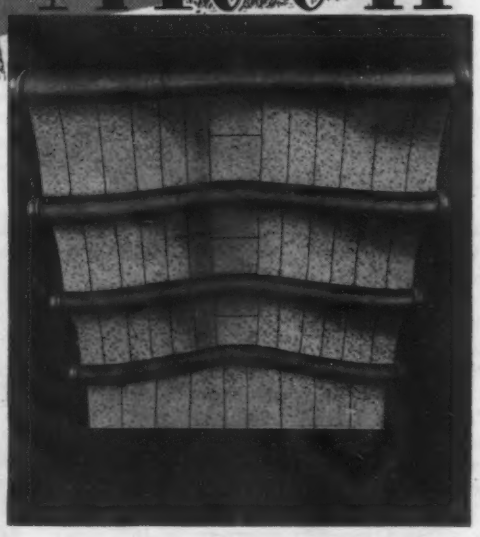


Photograph Courtesy of Chesapeake & Ohio Railway Co.

THE HARDER THE LOCOMOTIVE IS WORKED THE MORE COAL IS SAVED WITH THE...

Security ARCH

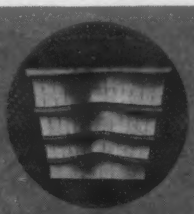


When locomotive runs were short and train speeds slow, the Security Arch showed substantial fuel savings. With modern operation, involving long runs at high speeds, the Security Arch shows a greater economy. Today the Security Arch costs less per 1,000 ton miles and is a more important fuel saving factor than it was when the service was less severe.

With traffic demands boosting locomotive mileage a complete arch in the firebox is a fundamental to the economical use of coal.

HARBISON-WALKER REFRACTORIES CO.

Refractory Specialists



AMERICAN ARCH CO.

INCORPORATED

60 EAST 42nd STREET, NEW YORK, N. Y.

Locomotive Combustion Specialists

working in coordination with the army transportation corps and other war agencies.

As reported in the *Railway Age* of September 16, the controlling interest in the **Hunt-Spiller Manufacturing Corporation,** manufacturers of railroad equipment, has been purchased by the **A. S. Campbell Company** of Boston, Mass. The A. S. Campbell Company has been engaged in manufacturing automotive equipment for more than 20 years. Under the new affiliation, **Neil C. Raymond,** president of the Campbell Company, is to serve as president of both companies, and **V. W. Ellet,** president of Hunt-Spiller, is retiring at his own request after thirty-three years of service with the company.

The Hunt-Spiller Manufacturing Corporation will carry on its business under its own name with the managerial, engineering, metallurgical and other technical skills of both companies now at its disposal. The facilities of Hunt-Spiller also will be supplemented by machining capacity and available floor space of the Campbell Company. **E. J. Fuller,** vice-president and general

Neil C. Raymond

manager, and the present Hunt-Spiller staff will continue as heretofore. **Francis W. Wheeler,** vice-president and treasurer of the Campbell Company, has been appointed a vice-president of Hunt-Spiller.

Mr. Raymond began his career in the mechanical department of the Chevrolet Motor Car Company in 1914. He was employed in the mechanical department of the Buick Motor Car Company from 1915 to 1917. He joined the Packard Motor Car Company in 1917 working in various branches, including production and general inspection, and was appointed superintendent of inspection in charge of the custom body division for that company in 1927. He joined the A. S. Campbell Company as factory manager in 1929, and was elected vice-president and a director in 1932. He was elected president and general manager in 1940.

Mr. Ellet began his career as a machinist apprentice with the Atchison, Topeka & Santa Fe at Madison, Iowa in 1897. From 1901 to 1903 he served as machinist with the St. Louis, Iron Mountain and Southern (Missouri Pacific), the Fort Worth & Denver City and the old Choctaw, Oklahoma & Gulf (now a part of the Chicago, Rock Island & Pacific). He returned to the Santa Fe as machinist in 1903-04 and served as expert tool maker for the United States arsenal at Rock Island, Ill., in 1904-05. He

V. W. Ellet

was mechanical foreman on the Missouri Pacific at Hoisington, Kan., in 1905-06 and an officer in the mechanical departments of the Rock Island at several points from 1906 to 1911. He joined the Hunt-Spiller Manufacturing Corporation as a mechanical representative in 1911 and was appointed sales manager in 1925. He was elected vice-president of the company in 1928 and president and general manager in 1936.

Mr. Wheeler was graduated from Harvard University in 1912. During the first world war he served as a first lieutenant in the 104th infantry of the 26th division. After the war, he entered the investment banking and brokerage business and later became a partner of the firm of Paine, Webber & Co., now Paine, Webber, Jackson & Curtis. He retired from that firm in 1941 in order to devote his entire time to his outside interests. In addition to being vice-president and treasurer of the A. S. Campbell Co. and vice-president of the

Francis W. Wheeler

Hunt-Spiller Manufacturing Corporation, Mr. Wheeler is president of the Paramount Building Corporation of Seattle, Wash., and vice-president and treasurer of the New England Laundries, Inc. He also served as trustee of the Seattle Gas Company of Seattle, and of the Gainesville Gas Company of Gainesville, Tex., and was secretary and director of the Blake Manufacturing Corporation of Clinton, Mass.

J. P. Wear, Jr., manager of the merchandising department in the Detroit, Mich., district for the **Graybar Electric Company,** has been appointed Graybar district merchandising manager with headquarters in Philadelphia, Pa. This district also includes branch houses at Allentown, Harrisburg and Reading, Pa., Baltimore, Md., and Washington, D. C. **A. D. Hammond,** Ohio Valley district manager with headquarters in Cincinnati, Ohio, has been appointed southern district manager for Graybar with headquarters in Atlanta, Ga. His territory includes the Graybar offices and warehouses at Birmingham, Ala., Columbia, S. C., and Knoxville and Chattanooga, Tenn.

W. H. Savage has been appointed manager of the General Equipment and Materials department of the **Robert W. Hunt Company,** Chicago, **G. W. Stierer** has been appointed manager of the Structural Steel department and **H. A. Ford** has been appointed manager of the Railway Car department.

The **National Battery Company,** with War Production Board approval, will construct and equip a new testing laboratory for its Gould commercial division plant at Depew, N. Y., to fill the need for research and product development in connection with Gould-manufactured U. S. Army and Navy batteries. A one-story brick building having approximately 10,000 sq. ft. of floor space is planned adjacent to the present office building.

William J. Van Vleck, assistant manager of the Philadelphia, Pa., district office of the **Worthington Pump & Machinery Corp.,** has been appointed manager of the company's Atlanta, Ga., office to succeed **Edward Stauverman,** who has resigned to engage in another line of business. **C. W. Camp,** formerly with the Crocker-Wheeler Electric Manufacturing Company for 38 years, has become associated with Worthington as consulting electrical engineer.

OBITUARY

W. Searls Rose, general sales manager of W. L. Brubaker & Bros., died September 29 in New York.

Earl L. Myers, general superintendent of the Gisholt Machine Company, Madison, Wis., died on September 20. He was 52 years of age.

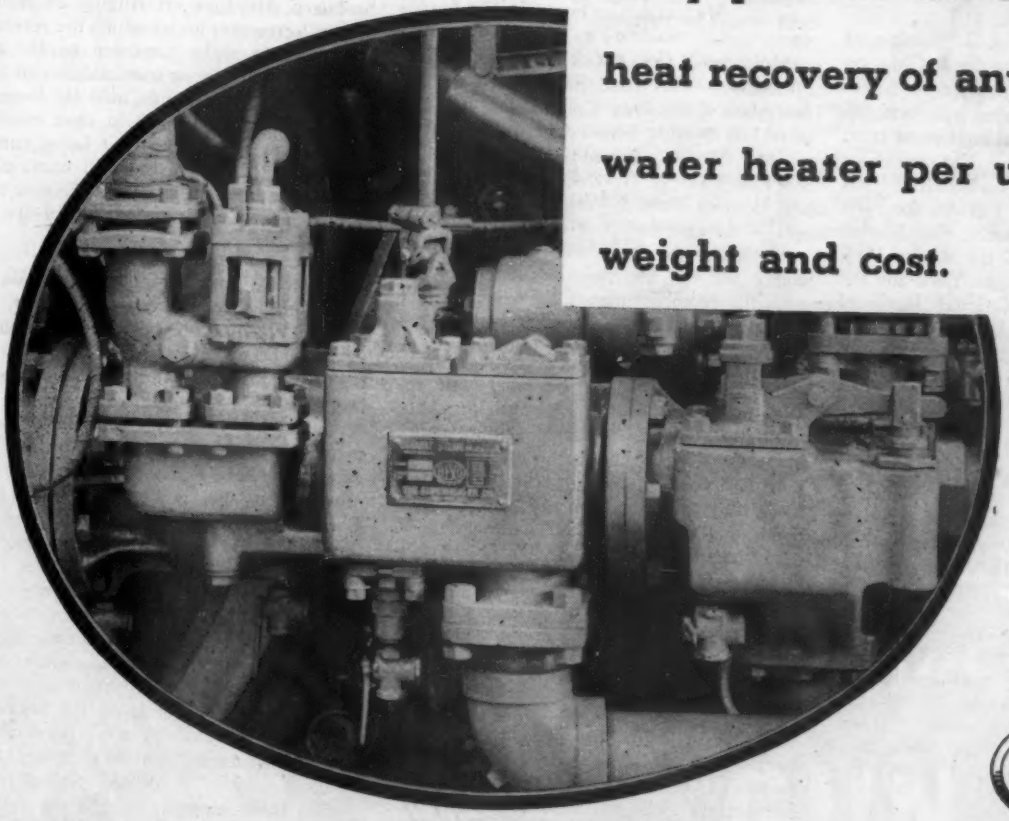
Joseph C. Bonner, inventor and former Toledo, Ohio, manufacturer, died September 28 in New York. He was 89 years of age. Mr. Bonner had devoted most of his time to the invention of a "rail-wagon" system designed to move freight from the point of origin to its destination without rehandling at terminals. He was formerly president of the Ames-Bonner Company, Toledo, and the Toledo Stock Exchange which he helped to organize.

News Department continued on next left-hand page

A *Practical Way* to Substantially Increase Boiler Capacity

—*Apply* Elesco Exhaust Steam Injectors.

They provide the highest heat recovery of any feed-water heater per unit of weight and cost.



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Financial

CENTRAL OF GEORGIA.—*Promissory Notes.*—Division 4 of the Interstate Commerce Commission has authorized this road to issue $655,120 of 2 per cent promissory notes, payable in four equal semi-annual installments, in connection with its purchase from the American Car & Foundry Co. of 450 50-ton steel box cars, at an aggregate cost of $1,637,800, under a conditional sale agreement. The notes were sold to the Citizens & Southern National Bank of Savannah, Ga., for $662,816, making the average annual cost to the road about 1.05 per cent.

CHESAPEAKE & OHIO-NEW YORK CENTRAL.—*Acquisition and Lease.*—The Nicholas, Fayette & Greenbrier, jointly owned by the C. & O. and N. Y. C., and jointly operated by them under lease, has been authorized by Division 4 of the Interstate Commerce Commission to acquire from the C. & O. two lines built by that carrier from a connection with the Greenbrier, aggregating 9.4 miles of track and known as the Hominy Creek subdivision. The parent roads' leases will be extended to cover the lines so acquired.

CHESAPEAKE AND OHIO. — *Equipment Trust Notes.*—The Chesapeake & Ohio, on September 28, awarded, subject to Interstate Commerce Commission approval, an issue of $2,200,000 of serial equipment trust certificates of 1944 to the National City Bank of Cleveland, acting on behalf of itself and the National Bank of Detroit, the First National Bank of Cincinnati, the Marine Trust Company of Buffalo, the Marine Midland Trust Company of New York and the First and Merchants National Bank of Richmond, Va. The accepted bid was 99.807 for 1¾ per cent obligations, an interest cost basis to the company of approximately 1.787 per cent. The certificates will be dated October 1, 1944, and will mature in 10 equal annual installments of $220,000 each, payable October 1 of each year starting in 1945. They are to be issued to finance in part the purchase of 10 type 2-6-6-6 freight locomotives, with 25,000 gal. tenders, to cost approximately $2,811,828.

CHICAGO, BURLINGTON & QUINCY.—*Equipment Trust Certificates.*—This company has applied to the Interstate Commerce Commission for authority to assume liability for $1,520,000 of equipment trust certificates in connection with its purchase of 22 1,000-hp. diesel-electric switching locomotives from the Baldwin Locomotive Works at a unit price of $78,500.

CHICAGO, ROCK ISLAND & PACIFIC.—*To Purchase Choctaw & Memphis Bonds.*—On September 26, the federal district court authorized trustees of the Rock Island to purchase any or all first mortgage bonds of the Choctaw & Memphis at prices not to exceed $1,450 for each $1,000 bond.

DELAWARE & BOUND BROOK.—*Par Value of Stock.*—Division 4 of the Interstate Commerce Commission has authorized this company to issue $1,800,000 of capital stock in shares of $25 par value in exchange for an equal principal amount in shares of $100 par value.

GULF, MOBILE & OHIO.—*Bond Refunding.*—Division 4 of the Interstate Commerce Commission has authorized this company to issue $10,500,000 of first and refunding mortgage 3¾ per cent bonds, series D, due in 1969, the proceeds to be employed in the redemption in advance of maturity of $2,000,000 of series A 3¾ per cent collateral trust bonds and $8,600,000 of series B 4 per cent collateral trust bonds, the latter being held by the Reconstruction Finance Corp. As noted in this column in the September 23 issue, page 496, the new issue has been sold to Shields & Co. and others at 97.2, the average annual cost to the carrier being 3.93 per cent. According to the division's report, the road's funded debt has been reduced $6,256,700 in the past four years and its expenditures on equipment purchases in that period have been $4,093,280. In addition to tax savings, the carrier will benefit by the longer life of the new issue, the division pointed out. While the road had a substantial amount of cash on hand, it was explained, when this transaction was arranged, it was undertaking the expenditure of about $9,000,000 for diesel-electric locomotives, for which about $2,000,000 in cash would be required.

MISSOURI-KANSAS-TEXAS.—*Modification of Leases.*—This road has applied to the Interstate Commerce Commission for approval of modified leases covering operation of the Texas Central; Wichita Falls; Wichita Falls & Northwestern of Texas; and Wichita Falls & Wellington of Texas; and of its modified user contract covering operation of the San Antonio Belt & Terminal, all for the purpose of complying with the requirements of the commission's current depreciation accounting regulations.

NEW YORK, CHICAGO & ST. LOUIS.—*Collateral Loan.*—This company will receive bids until October 13 for the purchase of $10,000,000 of five-year promissory notes, proceeds of which are to be used, together with $5,300,000 of treasury cash, to pay off the extended first mortgage 3½ per cent bonds due October 1, 1947, outstanding in principal amount of $15,188,000. (See previous item in *Railway Age* of September 23, page 496.)

PENNSYLVANIA.—*Cleveland & Pittsburgh Bonds.*—Bids will be received until October 10 for the purchase of an $11,000,000 issue of general and refunding mortgage bonds, series C, of the Cleveland & Pittsburgh, to be dated October 1, 1944, and to mature October 1, 1974. Principal and interest are to be guaranteed by the Pennsylvania. With the proceeds and funds to be advanced by the Pennsylvania, the Cleveland & Pittsburgh proposes to redeem at 105, $7,182,000 of its series A and $3,850,000 of series B 4½ per cent general and refunding mortgage bonds. (Previous item in *Railway Age* of September 30, page 532.)

PITTSBURGH & WEST VIRGINIA.—*Retires Notes.*—The Pittsburgh & West Virginia has purchased from the Reconstruction Finance Corporation, and retired, $443,000 of its 5-year 4 per cent secured notes, which were issued on July 1, 1940 to liquidate certain then outstanding bank loans. A total of $773,000 of these notes now have been retired. During the same period the company also has purchased $1,736,000 of its first mortgage bonds; $146,000 of Pittsburgh Terminal Coal Corporation bonds which it guaranteed; and retired $992,000 of maturing equipment trust certificates, bringing the total reduction in obligations during the period to $3,647,000.

ST. LOUIS-SAN FRANCISCO. — *Interest Payment Asked.* — The bondholders committee of the St. Louis-San Francisco has petitioned the federal district court at St. Louis, Mo., to authorize the railroad's trustee to pay about $12,500,000 in overdue interest on three bond issues.

SEABOARD.—*Acquisition of Florida Lines.*—Division 4 of the Interstate Commerce Commission has authorized the Seaboard Railway Company, a new corporation set up to acquire property of the Seaboard Air Line in reorganization, to purchase at foreclosure sale the properties of the Seaboard-All Florida, the Florida Western & Northern, and the East & West Coast at the upset price, $9,350,000. By court authority, the new company and the receivers of the Seaboard Air Line on August 29 entered into an agreement under which the receivers undertake to make available to the new company certain prior lien claims and Seaboard-All Florida bonds held by them, as well as about $1,774,560 in cash required to complete the purchase, it being further agreed that the receivers will continue to operate the Florida lines until the new company acquires other properties of the old company.

UNION PACIFIC. — *Oregon-Washington Bonds.*—This company's subsidiary, the Oregon-Washington Railroad & Navigation Co., has been authorized by Division 4 of the Interstate Commerce Commission to issue $54,750,000 of series A 3 per cent refunding mortgage bonds, guaranteed as to principal and interest by the Union Pacific, to be sold to Kuhn, Loeb & Co. and others at 102.098, and $17,444,000 of series B refunding mortgage bonds to be sold to the Union Pacific at the same price, the proceeds to be employed, with other funds, for the redemption at 105 of outstanding Oregon-Washington 4 per cent first and refunding mortgage bonds due in 1961, of which (upon conversion of certain pound sterling series B bonds of that issue) $54,750,000 is in the hands of the public and $17,444,000 is held by the Union Pacific. The new issues will mature October 1, 1960. A net saving of $6,639,655 over a 16-year period is anticipated through the refinancing. The division's approval was made subject to provision for annual sinking fund payments of $547,500 yearly to apply on the new issue, a larger amount than the road had proposed. Pointing out that the issuing company had argued that a 16-year term was preferable because a longer-term issue might sell on a less favorable basis, the division observed that "we are of the opinion that the subsidiary company should have availed itself of the favorable market

News Department continued on next left-hand page

It cannot be said too often . . . . .

IT'S good to be progress-minded, but one must not always assume that a product born as long ago as 1810 may necessarily have been bettered or displaced by a later development. So to keep you from forgetting a truth known for over a hundred years, we say again: HUNT-SPILLER *Air Furnace* GUN IRON is a *better* wear and heat resisting material. None know this better than the mechanical supervisors of the many roads using HSGI for valves, cylinders and other vital locomotive parts. Complete applications give greatest economy and savings.

HUNT-SPILLER MFG. CORPORATION

N. C. Raymond, President & E. J. Fuller, Vice-Pres. & Gen. Mgr.

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Canadian Representative: Joseph Robb & Co., Ltd., 5575 Cote St. Paul Rd., Montreal, P. Q.

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Cylinder Bushings
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Pistons or Piston Bull Rings
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Valve Packing Rings
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Crosshead Shoes
Hub Liners
Shoes and Wedges
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Finished Parts

Dunbar Sectional Type Packing
Duplex Sectional Type Packing for Cylinders and Valves
(Duplex Springs for Above Sectional Packing)
Cylinder Snap Rings
Valve Rings, All Shapes
Light Weight Valves
Cylinder Liners and Pistons for Diesel Service

now obtaining for low-rate railroad bonds and provided for a longer term for the new bonds since no one can safely attempt to predict the market conditions and interest rates which will prevail . . . on October 1, 1960."

WABASH.—*Refunding Operation Proposed.*—On October 3, the Wabash invited bids by October 18 on a $47,000,000 issue of first mortgage bonds, series B, with the bidder to name the interest rate. The company proposes to apply the proceeds from the sale of the new bonds, together with cash, to redeem on January 1, 1945, the entire $47,354,300 issue of first mortgage 4 per cent bonds, which were issued in 1942 in connection with the reorganization of Wabash Railway Company, prodecessor of Wabash Railroad Company. The new bonds are to be dated November 1, 1944, and mature November 1, 1970. Thus interest on both series of bonds would be paid for two months if the new bonds are sold. The refinancing would result in a net saving over the 26-year life of the proposed bonds of between $7,730,609 and $12,052,406, depending upon the rate of interest to be paid, according to Norman B. Pitcairn, president. A circular submitted with the invitation for bids points to the reduction in the company's debt since January 1, 1942 of $20,205,500.

WISCONSIN CENTRAL.—*Reorganization.*—This road, in receivership, has filed with the federal court and the Interstate Commerce Commission a petition for authority to proceed with reorganization under the provisions of section 77 of the Bankruptcy Act.

Average Prices Stocks and Bonds

	Oct. 3	Last week	Last year
Average price of 20 representative railway stocks..	40.72	40.65	37.27
Average price of 20 representative railway bonds..	89.32	88.96	79.51

Dividends Declared

Atlantic Coast Line.—5% preferred, $2.50, semi-annually, payable November 10 to holders of record October 23.

Philadelphia & Trenton.—$2.50, quarterly, payable October 10 to holders of record September 30.

Abandonments

ATLANTIC COAST LINE.—This company has applied to the Interstate Commerce Commission for authority to abandon a line from Sumter, S. C., to Darlington, 39.1 miles, and a branch thereof from Elliott to Bishopville, 9.2 miles.

CALIFORNIA CENTRAL.—This road has applied to the Interstate Commerce Commission for authority to abandon its entire line from Chittenden, Calif., to San Juan, 7.94 miles, operation of which has been suspended since November 11, 1930, by order of the Railroad Commission of California.

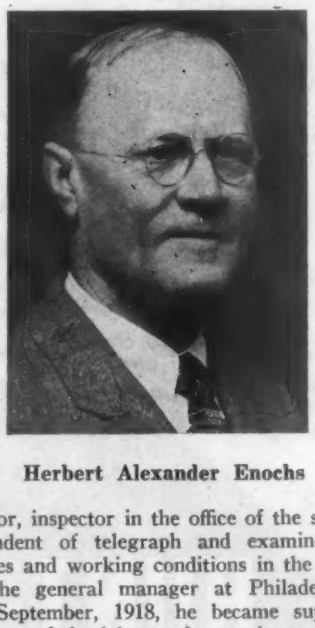
HAMPTON & LANGLEY FIELD.—Division 4 of the Interstate Commerce Commission has authorized this road to abandon operation of its line from Hampton, Va., to Langley Field, 3 miles, which is now owned by the War Department and used in government service.

Railway Officers

EXECUTIVES

H. J. Humphrey, vice-president, Eastern lines, of the Canadian Pacific, has been assigned to new, "special" duties concerned primarily with "the solution of problems that will confront the company in the period of transition from war to peace." **E. D. Cotterell,** general manager, Eastern lines, has been promoted to vice-president and general manager, succeeding Mr. Humphrey.

Herbert Alexander Enochs, vice-president—personnel of the Pennsylvania, has retired after 49 years' service. Mr. Enochs, who was born at Libertyville, Pa., on September 19, 1874, entered railroad service with the Pennsylvania in 1895 as a baggageman on the Philadelphia division, and subsequently served as brakeman, through baggage master, passenger conductor, inspector in the office of the superintendent of telegraph and examiner of wages and working conditions in the office of the general manager at Philadelphia. In September, 1918, he became superintendent of the labor and wage bureau. He was appointed acting chief of personnel in addition to his duties as superintendent of the labor and wage bureau, Eastern region, in December, 1931, and in 1932 he became chief of personnel, the position he held when he was advanced to vice-president—personnel in July, 1943. Mr. Enochs, who has been chairman of the executive committee of the Bureau of Information of the Eastern Railways, New York, for the past two years, has served for a number of years as chairman of the conference committees representing the railroads in numerous important national and regional negotiations with the railroad labor organizations regarding wages and working conditions.



Herbert Alexander Enochs

OPERATING

D. R. Prince, terminal trainmaster of the Southern Pacific Lines in Texas and Louisiana at Del Rio, Tex., has been promoted to trainmaster, with the same headquarters. **R. L. Taylor** has been appointed terminal trainmaster, with headquarters at Del Rio, succeeding Mr. Prince.

W. R. Pittman has been appointed superintendent of the Port Tampa terminals of the Atlantic Coast Line at Port Tampa, Fla.

H. D. Worley was recently appointed manager of mail service of the Pennsylvania at Philadelphia, Pa., succeeding **Fred Hance,** who has retired.

J. H. Lindsay has been appointed trainmaster of the Baltimore & Ohio, with headquarters at Washington, Ind., succeeding **C. A. Boyd,** who has been transferred to North Vernon, Ind.

G. E. Bruch, chief of personnel of the Norfolk & Western at Roanoke, Va., has been appointed assistant to general manager with the same headquarters. Mr. Bruch succeeds **W. O. Franklin,** who has retired after 52 years of service with the railroad.

H. A. Israel has been appointed assistant superintendent of the Joplin-White River division of the Missouri Pacific, with headquarters at Nevada, Mo., succeeding **G. S. Smith,** whose appointment as acting division engineer at Coffeyville, Kan., is reported elsewhere in these columns.

J. F. Scanlon, chief trainmaster of the Delaware, Lackawanna & Western at Scranton, Pa., has been promoted to assistant superintendent of the Morris and Essex division, Hoboken, N. J., succeeding G. R. Higgins. **J. R. Finnerty,** rules examiner, has been advanced to trainmaster of the Scranton division to replace Mr. Scanlon.

F. S. Worthington, trainmaster of the Southern at Columbia, S. C., has been transferred to Alexandria, Va., succeeding **F. A. Burroughs,** whose promotion to assistant superintendent of the Birmingham division with headquarters at Sheffield, Ala., was announced in the September 30 issue of *Railway Age*. **G. E. Smothers** has been appointed trainmaster at Columbia to succeed Mr. Worthington.

C. V. Berglund, assistant general superintendent of transportation of the Northern Pacific, at St. Paul, Minn., has been promoted to general superintendent of transportation, with the same headquarters, succeeding **Patrick H. McCauley,** who has retired after 60 years of service. **H. A. Aberg,** general car service agent, has been advanced to assistant general superintendent of transportation at St. Paul, replacing Mr. Berglund.

TRAFFIC

F. R. Barfield has been appointed freight service agent of the Atlantic Coast Line with headquarters at Savannah, Ga.

Leon B. Poore, district passenger agent of the Pennsylvania, with headquarters at St. Paul, Minn., has retired after 55 years of service.

Walter W. Kremer, who resigned recently as western traffic manager of the Boston & Maine at Chicago, has been appointed general freight agent of the

Canadian Pacific, with the same headquarters, succeeding **G. Allan MacNamara,** whose promotion to general traffic manager of the Minneapolis, St. Paul & Sault Ste. Marie was reported in the *Railway Age* of September 30.

W. J. Dundon, assistant general freight agent of the Atchison, Topeka & Santa Fe at Chicago, has been promoted to general freight agent, with the same headquarters, a newly-created position.

E. W. Sanford has been appointed district freight and passenger agent of the Denver & Rio Grande Western, with headquarters at Pueblo, Colo., succeeding **T. B. Easley,** who has been assigned to other duties.

A. J. Nash, traffic representative of the Delaware, Lackawanna & Western at Buffalo, N. Y., has been promoted to general agent at Toledo, Ohio, succeeding **D. L. Norton,** who has been transferred to Boston, Mass.

Arthur E. Baylis has been appointed foreign freight traffic manager of the New York Central, with headquarters at New York. Until recently Mr. Baylis has been with the Office of Defense Transportation in Washington.

F. Gruver, Jr., commercial agent of the Atlantic Coast Line, the Charleston & Western Carolina, and the Columbia, Newberry & Laurens at Wilson, N. C., has been promoted to general agent of these three roads, with headquarters at Kingsport, Tenn.

John C. Comiskey, tariff clerk of the Atchison, Topeka & Santa Fe at Chicago, has been promoted to chief of the tariff bureau, general freight department, with the same headquarters, succeeding **Charles Croskey,** who has retired after 40 years of service.

R. A. Hasenstab, district freight agent of the Canadian Pacific at Chicago, has been promoted to general freight agent of the Canadian Pacific and of the Minneapolis, St. Paul & Sault Ste. Marie, with headquarters at Detroit, Mich. **T. M. Holland,** traveling freight agent of the Canadian Pacific, with headquarters at Chicago, has been advanced to district freight agent, succeeding Mr. Hasenstab.

J. N. Fisher, traveling passenger agent of the Seaboard Air Line, has been advanced to district passenger agent succeeding **John Callahan,** whose appointment as division passenger agent with headquarters at West Palm Beach, Fla., was announced in the August 26 issue of *Railway Age*. **J. T. Perkins,** traveling passenger agent, has been promoted to the position of district passenger agent with headquarters as before at Atlanta, Ga., and **H. T. Denning,** district passenger agent at Birmingham, Ala., is now serving as division passenger agent at that place. The positions of traveling passenger agent at Atlanta and district passenger agent at Birmingham have been abolished.

G. Allan MacNamara, whose promotion to general traffic manager of the Minneapolis, St. Paul & Sault Ste. Marie, with headquarters at Minneapolis, Minn., was reported in the *Railway Age* of September 30, was born at Winnipeg, Man., on February 4, 1895, and entered railway service with the Canadian Northern (part of the Canadian National) in 1912 as a clerk in the freight traffic department at Winnipeg. He entered the Canadian Army in 1915 and after four years in France he returned to Winnipeg and was assigned to the freight traffic department of the Canadian National. In 1920 Mr. MacNamara went with the Canadian Pacific as a clerk of the freight traffic department, with headquarters as before at Winnipeg, and five years later he was placed in charge of that road's Minneapolis office. In 1928 he was promoted to district freight agent, with headquarters at Indianapolis, Ind., and in 1934 he was advanced to division freight agent at Detroit, Mich. In 1936 Mr. MacNamara was promoted to general freight agent, with the same headquarters, and in January, 1941, he was transferred to Boston, Mass. In July of the same year he was transferred to Chicago, remaining in that location until his new appointment.

G. Allan MacNamara

ENGINEERING & SIGNALING

G. S. Smith, assistant superintendent of the Joplin-White River division of the Missouri Pacific at Nevada, Mo., has been appointed acting division engineer of the Southern Kansas-Central divisions, with headquarters at Coffeyville, Kan., succeeding **R. G. Bush,** who has been granted a leave of absence due to sickness.

MECHANICAL

E. A. Streich, assistant superintendent of locomotive shops of the Chicago & North Western, has been promoted to master mechanic, with headquarters as before at Chicago.

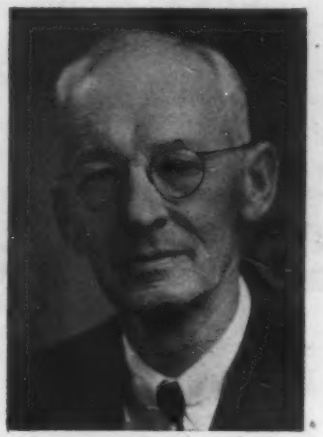
L. A. Porter, assistant to general superintendent, motive power, of the Seaboard Air Line at Norfolk, Va., has been promoted to assistant general superintendent, motive power, with the same headquarters.

W. A. Bender, master car builder of the Alton at Chicago, has been promoted to assistant to the general manager, with the same headquarters, succeeding **Daniel J. Deasy,** whose death on September 16 was reported in the *Railway Age* of September 23. **H. A. Harris,** general foreman of the car department, with headquarters at Bloomington, Ill., has been advanced to master car builder, relieving Mr. Bender at Chicago.

J. J. Burch, general foreman of the car department of the Norfolk & Western at Roanoke, Va., has retired, and **C. S. Patton, Jr.,** foreman of the passenger car shop, has been appointed to succeed him.

H. E. Aenchbacher, general foreman of the locomotive department of the Seaboard Air Line at Howells, Ga., has been appointed assistant master mechanic of the Virginia division with headquarters at Hamlet, N. C.

Hubert Hawthorn, whose appointment as mechanical engineer of the Central of Georgia with headquarters at Savannah, Ga., appeared in the *Railway Age* for July 8, was born at Newcastle, England, on April 14, 1885. He entered railroad service with the Atlantic Coast Line in 1904 as a machinist apprentice and became a machinist and draftsman in 1908. In October of the following year he joined the Central of Georgia as a draftsman, serving in that capacity until June, 1924, when he was appointed shop engineer, the position he held at the time of his recent appointment as mechanical engineer with headquarters at Savannah.



Hubert Hawthorn

M. R. Reed, superintendent of motive power of the Pennsylvania on special duty in the office of chief of motive power, has been advanced to assistant chief of motive power—car at Philadelphia, Pa., succeeding **R. L. Kleine,** who has been granted a leave of absence preparatory to his retirement on January 1, 1945. Mr. Reed was born in Jasper County, Ill., on June 26, 1893. After graduation from Rose Polytechnic Institute in June, 1905, with a B. S. degree in mechanical engineering, he was employed for a short time in the signal department of the Vandalia (now a part of the Pennsylvania). In September, 1905, he went to Omaha, Neb., as a special apprentice in the Union Pacific shops, where he remained for a year. He reentered the service of the

News Department continued on second left-hand page

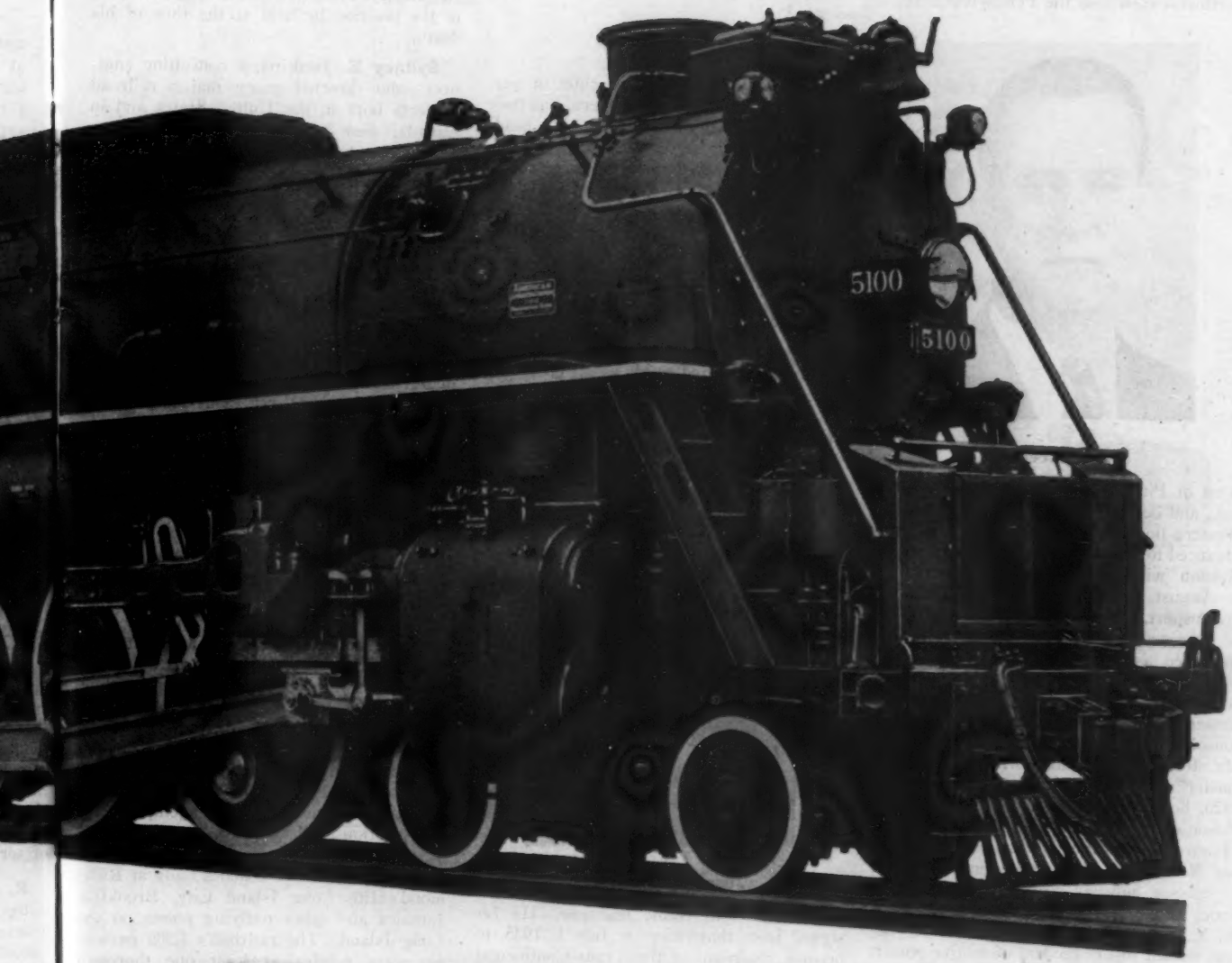
LOCOMOTIVES THAT ARE MAKING HISTORY

AMERICAN railroading today is demanding more of locomotive builders than ever before. American Locomotive Company is maintaining its long reputation for "delivering the goods"—in locomotive design and construction. Part of an urgent job was the 4-8-4 shown above—one of ten completed early this year by American Locomotive Company for the Rock Island.

Here are the "SPECS":

Weight on Drivers	280,000 lbs.
Weight of Engine	467,000 lbs.
Cylinders	26 x 32 ins.
Diameter of Drivers	74 ins.
Boiler Pressure	270 lbs.
Tractive Power	67,000 lbs.
Tender Type	12-Wheeled

Locomotive designs developed by American Locomotive Company have been, are, and will continue to be powerful factors in American railroad operating efficiency and economy.



● **Another Important Job... this one for ROCK ISLAND**

American Locomotive

NEW YORK

DIESEL ELECTRIC · ELECTRIC · STEAM

Vandalia as a draftsman at Terre Haute, Ind., in September, 1906, and after serving in various capacities in the car and locomotive shops he was appointed chief draftsman in February, 1909. On April 1, 1917, he was promoted to chief car inspector of the Northwest system of the Pennsylvania lines

M. R. Reed

West of Pittsburgh (Pa.) at Fort Wayne, Ind., and became supervisor of car repairs, Western lines, in September, 1918. He was advanced to master mechanic of the Eastern division with headquarters at Pittsburgh in August, 1919, and was transferred to Logansport, Ind., in March, 1920, where he remained until April, 1925, when he was appointed assistant general superintendent of motive power, Northwestern region, with headquarters at Chicago. When the Northwestern and Southwestern regions were consolidated and reorganized in June 1925, Mr. Reed resumed his former position of master mechanic at Logansport. In July, 1926, he was appointed acting master mechanic of the Fort Wayne division and was advanced to master mechanic the following November. He became superintendent of motive power, Northern division, in June, 1928, with headquarters at Buffalo, N. Y., and in the October of the next year was named superintendent of motive power, Eastern Pennsylvania division, at Harrisburg, Pa. On November 1, 1933, he was promoted to general superintendent of motive power, Central division, at Pittsburgh, holding that position until his appointment, in December, 1936, as superintendent of motive power, Eastern Pennsylvania division, the position he held at the time of his recent appointment as assistant chief of motive power—car. In 1938 Mr. Reed was appointed by President Roosevelt to a five-year term as the carriers' representative on the Railroad Retirement Board. He was assigned to special duties in the office of the chief of motive power at Philadelphia last year.

PURCHASES AND STORES

A. L. Sorensen, associate director of the Division of Material and Equipment Requirements of the Office of Defense Transportation, has returned to his position as manager of stores of the Erie at Hornell, N. Y. **C. K. Reasor,** acting manager of stores during Mr. Sorensen's absence, has been reappointed assistant manager of stores with the same headquarters.

Clifton Oliver has been appointed purchasing agent and storekeeper of the Panhandle & Santa Fe, with headquarters at Amarillo, Tex., succeeding **W. W. Davis,** deceased.

SPECIAL

F. K. Day, Jr., assistant chief of personnel of the Norfolk & Western, has been promoted to chief of personnel with headquarters at Roanoke, Va., succeeding **G. E. Bruch,** whose appointment as assistant to the general manager is announced elsewhere in these volumns.

OBITUARY

Joseph A. Farmar, chairman of the Western Traffic Executive Committee and Western Trunk Line Committee, died on September 29 at his home in Oak Park, Ill. Mr. Farmer started work as an office boy in the freight traffic department of the Chicago, Milwaukee, St. Paul & Pacific in Chicago and advanced to the position of

Joseph A. Farmar

assistant freight traffic manager. He resigned from that office on July 1, 1935, to become chairman of the Trans-Continental Freight Bureau and on March 1, 1937, was appointed chairman of the Western Trunk Line Committee and the Western Traffic Executive Committee. Mr. Farmar was also a member of the Traffic Executive Chairmen's Committee, which handles freight traffic problems with the War, Navy and other governmental departments.

J. W. Brady, assistant freight traffic manager of the New York, Chicago & St. Louis, with headquarters at Chicago, died at his home in that city on October 2. Mr. Brady was born at Toledo, Ohio, on July 31, 1888, and entered railway service in 1906 as a contracting freight agent of the Ann Arbor at Toledo. After about six years with this company, Mr. Brady resigned to join the Toledo, St. Louis & Western (now part of the Nickel Plate) as a traveling freight agent with headquarters at Toledo. During the war he served as chief clerk to the traffic manager of this company, in which capacity he had supervision over the distribution of coal for the government. In 1920 he was sent to Detroit, Mich., as general agent and when the T. St. L. & W. was absorbed by the Nickel Plate in 1922, he remained in the same capacity. In April, 1927, he was transferred to Pittsburgh, Pa., where he remained until 1931, when he was sent to Chicago as assistant general freight agent. In January, 1938, Mr. Brady was promoted to the position he held at the time of his death.

Sydney E. Junkins, a consulting engineer who directed many major railroad projects both in the United States and in Canada, died on October 3 at Hanover, N. H. He was 77 years old.

William B. Nolan, master mechanic of the Ohio division and the Cincinnati terminals of the Baltimore & Ohio, with headquarters at Cincinnati, Ohio, died in a hospital in that city recently.

Raymond Swenk, assistant to the general manager of the Central region of the Pennsylvania, with headquarters at Pittsburgh, Pa., and formerly chief engineer, maintenance-of-way of that region, died on October 2 at the West Penn Hospital, at Pittsburgh.

Charles H. Kenzel, purchasing agent of the Elgin, Joliet & Eastern, with headquarters at Chicago, died in a hospital in that city on September 30. Mr. Kenzel was born at Chicago on November 28, 1878, and entered railway service on September 15, 1896, as a messenger of the E. J. & E. He subsequently held several minor positions until October, 1906, when he was promoted to chief clerk of the purchasing agent at Chicago. In February, 1910, he was advanced to assistant purchasing agent, with the same headquarters, and in September, 1918, he went with the Chicago, Milwaukee & Gary (now the Chicago, Milwaukee, St. Paul & Pacific) as purchasing agent at Chicago. On March 1, 1920, Mr. Kenzel returned to the E. J. & E. as purchasing agent, holding that position until his death.

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230 WOMEN clean coaches daily at Richmond Hill, Long Island City, Brooklyn, Jamaica and other outlying points on the Long Island. The railroad's 1,300 passenger cars receive at least one thorough cleaning each day, and some of them several times a day. In the Richmond Hill yard, where the steam coaches are cleaned, women wear smartly styled uniforms, designed for them by a large Manhattan department store. As one woman pointed out, "We got the idea from the uniforms worn by the girls in the aircraft factories. After all, the Long Island Railroad is a big war industry itself."

FOR HEROISM.—Trainman R. F. Dunn of the Baltimore & Ohio was awarded a watch and chain at a recent safety meeting for having saved the life of a 2-year-old child. Mr. Dunn, while working on a switching train of 41 cars on the outskirts of Philadelphia, about 6 p. m., on August 19, from his position on the engine observed the child on the tracks in front of the train. Realizing the train, although moving slowly, could not be stopped before reaching the child, the trainman jumped over the guard rail of the locomotive and from a position on the pilot step reached out and brushed the child clear of the rails.

REVENUES AND EXPENSES OF RAILWAYS

MONTH OF AUGUST AND EIGHT MONTHS OF CALENDAR YEAR 1944

Name of road		Av. mileage operated during period	Operating revenues: Freight	Passenger	Total (inc. misc.)	Operating expenses: Maintenance of: Way and structures	Equipment	Traffic	Transportation	Total	Operating ratio	Net from railway operation	Operating income	Net railway operating income: 1944	1943
Akron, Canton & Youngstown	Aug.	171	$407,371	$259	$422,735	$86,647	$34,571	$17,777	$121,420	$277,662	65.7	$145,073	$85,127	$68,175	$80,783
	8 mos.	171	2,995,019	1,367	3,124,714	532,037	290,303	146,560	904,596	2,018,962	64.6	1,105,752	678,154	549,370	685,434
Alton	Aug.	959	2,259,130	785,756	3,341,097	556,365	501,699	76,844	1,041,149	2,302,613	68.9	1,038,484	462,319	219,000	265,172
	8 mos.	959	16,274,530	6,374,734	25,244,176	3,509,496	3,575,691	556,530	8,127,486	16,813,485	66.6	8,430,691	4,443,566	2,643,107	2,910,171
Atchison, Topeka & Santa Fe System	Aug.	13,093	36,859,201	9,617,723	49,393,324	5,824,486	7,264,707	642,434	12,081,054	26,415,939	53.5	22,977,385	5,614,329	4,738,487	5,552,357
	8 mos.	13,108	244,951,224	75,914,484	344,647,020	41,608,348	53,368,217	4,994,197	91,015,083	196,044,493	56.9	148,602,527	37,405,835	34,328,485	41,384,352
Atlanta & West Point	Aug.	93	285,436	174,421	503,369	48,286	58,501	9,935	175,028	312,154	62.0	191,215	65,601	38,362	44,447
	8 mos.	93	2,194,237	1,274,560	3,804,935	394,158	450,617	78,132	1,277,690	2,354,691	61.9	1,450,244	483,180	266,345	335,719
Western of Alabama	Aug.	133	296,657	173,705	504,765	56,809	66,123	10,204	155,827	306,221	60.7	198,544	51,453	44,322	65,773
	8 mos.	133	2,198,977	1,290,938	3,767,064	404,866	500,559	80,798	1,212,979	2,338,324	62.1	1,428,740	430,540	375,619	460,608
Atlanta, Birmingham & Coast	Aug.	639	629,112	59,934	715,470	124,858	99,908	27,203	254,761	526,872	73.64	188,598	53,524	24,153	12,517
	8 mos.	639	4,625,667	409,762	5,278,427	898,889	804,092	222,909	1,970,193	4,076,259	74.22	1,202,168	552,483	271,421	545,827
Atlantic Coast Line	Aug.	4,962	7,355,106	3,750,663	11,817,207	1,314,137	2,111,409	172,460	3,803,637	7,781,095	65.8	4,036,112	786,112	617,818	835,417
	8 mos.	4,962	68,772,434	30,708,407	105,812,588	9,769,423	15,963,198	1,458,870	30,603,089	60,974,592	57.6	44,837,996	13,337,996	9,940,358	12,297,108
Charleston & Western Carolina	Aug.	343	360,315	17,099	384,992	56,452	58,560	10,207	116,626	248,524	64.6	136,468	26,468	26,536	12,070
	8 mos.	343	2,982,352	96,971	3,147,573	431,545	464,890	81,011	952,039	1,983,653	63.0	1,163,920	583,920	572,074	585,354
Baltimore & Ohio	Aug.	6,144	27,496,997	4,527,703	34,616,648	5,355,946	6,652,548	544,102	11,332,526	25,003,069	72.2	9,613,579	4,858,888	3,960,308	6,328,664
	8 mos.	6,147	217,991,807	33,427,337	258,967,150	37,458,817	51,914,058	3,942,421	85,388,752	187,317,324	72.3	71,649,826	37,281,939	31,182,711	46,868,557
Staten Island Rapid Transit	Aug.	24	381,564	136,601	530,232	105,702	40,236	1,171	114,832	289,518	54.6	240,714	124,675	97,057	142,138
	8 mos.	24	2,631,199	938,534	3,644,112	504,736	312,807	10,095	942,952	1,985,524	54.5	1,658,588	1,019,006	852,594	787,222
Bangor & Aroostook	Aug.	602	491,304	94,109	640,224	65,119	129,694	6,096	176,420	413,713	64.6	226,511	—8,326	28,703	—67,171
	8 mos.	602	5,377,046	615,916	6,299,340	1,047,711	953,089	49,218	1,627,242	3,941,131	62.6	2,358,209	748,712	926,376	1,030,632
Bessemer & Lake Erie	Aug.	214	2,128,405	1,944	2,143,780	152,845	756,608	12,579	378,889	1,363,933	63.6	779,847	403,847	553,516	486,519
	8 mos.	214	13,420,613	14,752	13,550,118	1,183,967	5,831,462	110,964	2,732,595	10,215,979	75.4	3,334,139	1,474,311	2,992,211	1,206,415
Boston & Maine	Aug.	1,819	4,853,488	2,052,882	7,551,153	1,245,642	1,263,834	76,326	2,718,081	5,546,016	73.5	2,005,137	1,170,172	903,202	1,248,626
	8 mos.	1,819	40,089,911	13,084,592	58,335,031	9,246,385	9,817,503	602,963	21,309,049	42,889,170	73.5	15,445,861	8,959,082	6,712,640	8,695,293
Burlington, Rock Island	Aug.	228	215,355	63,635	297,521	38,340	27,632	3,189	100,536	185,286	62.3	112,235	101,899	59,689	45,501
	8 mos.	228	1,294,464	505,475	1,916,497	226,434	197,956	25,285	625,372	1,197,798	62.5	718,699	642,773	393,054	418,239
Cambria & Indiana	Aug.	35	130,457	.....	130,529	14,137	50,961	564	16,962	89,233	68.36	41,296	—22,820	56,335	83,611
	8 mos.	35	1,238,070	.....	1,238,628	96,960	399,905	4,692	154,641	712,294	57.51	526,334	—202,562	428,212	303,857
Canadian Pacific Lines in Maine	Aug.	234	274,078	89,909	398,086	78,067	68,167	6,163	135,866	298,396	75.0	99,690	77,520	55,627	232,791
	8 mos.	234	3,142,477	636,349	4,013,140	476,583	593,275	50,391	1,221,940	2,428,120	60.5	1,585,020	1,408,459	1,134,111	1,497,340
Canadian Pacific Lines in Vermont	Aug.	90	79,101	49,459	141,885	39,828	36,012	2,238	83,623	166,877	117.6	—24,992	—33,834	—63,105	—103,540
	8 mos.	90	685,685	201,078	988,129	297,533	265,404	18,374	718,376	1,341,023	135.7	—352,894	—426,929	—671,080	—621,738
Central of Georgia	Aug.	1,815	2,479,816	863,438	3,732,203	472,825	508,510	69,013	1,227,116	2,420,394	64.9	1,311,809	850,306	792,767	1,080,387
	8 mos.	1,815	18,314,987	5,818,297	26,470,216	3,385,792	4,063,166	561,686	9,437,490	18,581,399	70.2	7,888,817	5,110,407	4,573,918	6,288,718
Central of New Jersey	Aug.	655	4,312,904	748,930	5,368,885	584,405	886,093	56,260	2,030,435	3,730,042	69.5	1,638,843	946,206	678,005	536,863
	8 mos.	655	33,581,493	5,061,403	41,095,073	4,508,064	7,318,738	425,236	16,938,859	30,499,365	74.2	10,595,708	6,256,021	3,669,645	4,613,123
Central Vermont	Aug.	422	541,923	121,000	716,578	114,769	88,591	10,476	338,430	577,335	80.6	139,243	91,202	43,987	116,168
	8 mos.	422	4,860,717	650,000	5,945,012	895,965	875,571	83,326	2,543,472	4,605,410	77.5	1,339,602	969,173	594,991	963,794
Chesapeake & Ohio	Aug.	3,072	16,698,076	1,816,601	19,289,944	2,328,961	3,599,775	228,232	4,892,537	11,565,874	60.0	7,724,070	2,651,964	2,875,773	3,435,946
	8 mos.	3,073	125,551,283	15,843,335	146,651,610	17,335,399	28,256,650	1,891,014	37,956,420	89,941,276	61.3	56,710,334	19,672,137	22,322,400	24,952,107
Chicago & Eastern Illinois	Aug.	912	1,987,008	730,449	2,945,183	419,256	446,084	68,092	974,936	2,013,432	68.4	931,751	399,972	139,846	367,214
	8 mos.	912	16,216,207	5,077,873	23,221,713	2,873,769	3,573,241	520,344	8,166,088	16,012,073	69.0	7,209,640	4,413,971	2,325,278	2,872,043
Chicago & Illinois Midland	Aug.	131	576,993	1,736	610,732	82,653	75,640	21,664	148,278	355,548	58.2	255,184	76,754	81,611	93,476
	8 mos.	131	4,491,623	12,255	4,742,064	583,999	701,940	176,815	1,146,199	2,826,062	59.6	1,916,002	638,220	655,075	659,667
Chicago & North Western	Aug.	8,077	10,196,420	3,632,160	15,301,043	1,937,904	2,608,866	220,278	4,802,312	10,077,116	65.9	5,223,927	2,190,739	2,028,301	3,567,475
	8 mos.	8,089	74,523,021	25,034,790	110,075,089	14,707,676	19,913,967	1,998,667	36,820,158	77,417,172	70.3	32,657,917	15,739,558	15,746,915	22,336,374
Chicago, Burlington & Quincy	Aug.	8,988	16,351,947	3,448,022	21,527,284	4,309,765	2,936,099	256,752	5,254,248	13,360,652	62.1	8,166,632	4,196,941	3,764,151	5,168,569
	8 mos.	8,990	116,683,830	26,944,730	156,736,523	26,373,730	21,955,889	2,275,172	40,260,877	95,567,186	61.0	61,169,337	20,796,542	18,148,518	31,372,220
Chicago Great Western	Aug.	1,500	2,121,148	263,532	2,585,885	414,629	333,083	65,434	930,618	1,814,736	70.2	771,149	482,365	246,992	400,098
	8 mos.	1,500	16,871,939	1,935,148	20,321,410	2,985,142	2,585,484	517,794	7,406,990	14,094,957	69.4	6,226,453	3,561,534	2,142,961	2,436,158
Chicago, Indianapolis & Louisville	Aug.	541	959,097	124,226	1,163,473	153,849	198,700	31,428	371,006	833,799	71.1	329,674	220,092	176,448	268,228
	8 mos.	541	7,664,749	881,784	9,193,171	1,018,027	1,517,156	257,720	2,881,334	6,117,237	66.5	3,075,934	2,168,321	1,842,109	2,239,607

Table continued on second left-hand page

1910
7004

SHORTER STOPS INCREASE TRACK CAPACITY

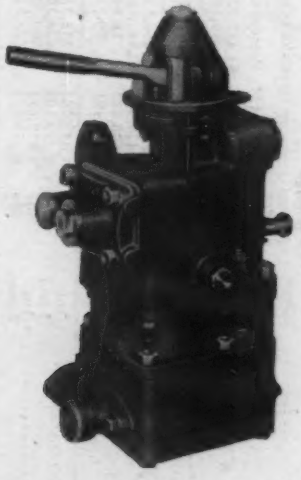
If you were asked to identify the "last word" in passenger brake equipment, you'd undoubtedly name the electro-pneumatic brake, that saves seconds by its instantaneous transmission feature. Yet there are 34 years of every-day operation behind this development.

The first large-scale application of the electro-pneumatic principle was on New York Subways where traffic had out-grown the facilities of the original subway system. The electro-pneumatic transmission feature saved seconds by shortening the stop, and additional seconds by faster brake release, permitting more rapid train acceleration.

Headway between trains was so reduced that sufficient additional trains of the same length could be operated to handle the traffic over-burden. Thus, the brake increased the track capacity and saved capital expenditure for lengthened platforms and additional car equipment if train length had been extended.

75 Years of Pioneering

WESTINGHOUSE AIR BRAKE COMPANY, WILMERDING, PA.



Always abreast of new transportation needs, the HSC brake is a dependable, practical answer to the problem of controlling today's high speed passenger trains.

1869 1944

TO PERMIT TODAY'S TRAINS TO MOVE AT SHORTER INTERVALS WITH HEAVIER LOADS AT HIGHER SPEEDS—SAFELY.

REVENUES AND EXPENSES OF RAILWAYS

MONTH OF AUGUST AND EIGHT MONTHS OF CALENDAR YEAR 1944—CONTINUED

Name of road		Av. mileage operated during period	Operating revenues: Freight	Passenger	Total (inc. misc.)	Operating expenses: Maintenance of Way and structures	Maintenance of Equipment	Traffic	Transportation	Total	Operating ratio	Net from railway operation	Operating income	Net railway operating income 1944	1943
Chicago, Milwaukee, St. Paul & Pacific	Aug.	10,722	$15,305,062	$3,427,525	$20,679,599	$3,761,058	$2,982,782	$297,160	$6,341,139	$14,094,157	68.2	$6,585,442	$3,282,442	$3,006,241	$4,252,748
	8 mos.	10,729	111,795,517	22,499,380	148,183,533	25,188,898	22,900,835	2,418,542	49,108,508	105,075,679	70.9	43,107,854	22,862,854	20,796,307	36,544,932
Chicago, Rock Island & Pacific	Aug.	7,751	12,719,132	4,101,060	18,108,005	2,270,633	2,232,511	338,938	4,609,138	10,046,806	55.5	8,061,199	4,331,505	3,491,598	3,848,640
	8 mos.	7,751	87,068,460	29,529,487	126,146,414	15,400,591	17,253,309	2,708,402	35,882,790	76,112,440	60.3	50,033,974	25,348,807	20,905,695	29,844,912
Chicago, St. Paul, Minneapolis & Omaha	Aug.	1,617	1,759,374	461,559	2,429,119	334,242	338,080	40,506	972,407	1,768,404	72.8	660,715	429,276	363,972	407,824
	8 mos.	1,617	13,434,092	2,945,762	17,970,045	2,558,890	2,701,316	320,130	7,717,481	13,954,884	77.7	4,015,161	2,601,365	2,111,182	3,077,712
Clinchfield Railroad	Aug.	302	1,196,832	12,869	1,219,524	91,916	194,306	20,605	244,920	571,280	46.8	648,244	511,597	534,335	471,978
	8 mos.	302	9,439,191	90,558	9,598,968	677,438	1,508,130	181,158	1,966,420	4,502,282	46.9	5,096,686	4,066,181	4,198,197	3,747,828
Colorado & Southern	Aug.	748	1,012,964	355,357	1,471,505	233,408	220,111	17,633	458,436	976,147	66.3	495,358	237,320	173,089	260,864
	8 mos.	748	7,273,193	2,628,190	10,695,317	1,347,515	1,735,391	140,304	3,265,796	6,859,495	64.1	3,835,822	2,262,699	1,868,886	2,054,166
Fort Worth & Denver City	Aug.	804	978,851	480,207	1,572,969	296,328	141,997	27,313	386,518	914,437	58.1	658,532	372,222	276,754	389,314
	8 mos.	804	6,559,672	3,675,751	11,061,936	1,852,413	1,126,382	201,670	2,731,288	6,393,085	57.8	4,668,851	2,580,986	2,119,689	2,528,900
Colorado & Wyoming	Aug.	42	75,085	.....	129,309	13,384	21,687	757	51,873	92,199	71.3	37,110	23,613	22,930	34,093
	8 mos.	42	699,525	.....	1,122,134	87,877	163,725	6,047	438,607	732,184	65.2	389,950	268,046	261,960	189,765
Columbus & Greenville	Aug.	168	131,918	11,396	152,807	34,350	19,858	3,584	50,017	121,052	79.2	31,755	7,060	9,345	2,235
	8 mos.	168	896,305	96,685	1,065,345	224,932	146,632	34,501	362,832	879,334	82.5	186,011	54,526	70,739	30,457
Delaware & Hudson	Aug.	846	3,585,273	301,620	4,002,571	570,481	1,028,965	48,454	1,431,387	3,196,414	79.9	806,157	515,669	579,514	1,100,300
	8 mos.	847	31,564,993	1,608,110	33,990,065	3,924,771	8,348,774	381,072	11,479,946	25,066,361	73.7	8,923,704	5,825,478	5,766,420	6,139,921
Delaware, Lackawanna & Western	Aug.	973	4,959,959	1,053,964	6,644,978	791,940	975,976	122,393	2,664,661	4,740,364	71.3	1,904,614	880,558	799,619	1,192,166
	8 mos.	973	40,340,857	7,373,389	52,712,406	5,767,583	8,438,297	920,857	21,454,679	38,052,416	72.2	14,659,990	8,834,640	8,101,262	8,844,672
Denver & Rio Grande Western	Aug.	2,388	5,058,467	833,772	6,164,963	805,180	1,183,287	105,478	1,783,301	4,080,276	66.2	2,084,687	1,342,379	1,250,648	1,701,970
	8 mos.	2,393	36,811,200	6,585,335	45,368,733	5,887,510	9,220,085	808,526	13,684,749	31,170,777	68.7	14,197,956	9,763,920	9,192,588	11,996,165
Denver & Salt Lake	Aug.	232	302,194	13,457	327,477	53,778	62,414	3,314	99,550	230,676	70.4	96,801	65,341	112,263	75,509
	8 mos.	232	2,049,077	78,432	2,207,116	494,671	447,921	22,914	741,042	1,800,072	81.6	407,044	165,090	549,422	638,189
Detroit & Mackinac	Aug.	230	67,083	18,702	93,362	25,087	21,772	768	32,456	83,959	89.9	9,403	4,598	2,690	—10,131
	8 mos.	230	494,672	92,441	649,848	146,649	143,704	6,475	251,618	579,760	89.2	70,088	36,084	19,952	4,421
Detroit & Toledo Shore Line	Aug.	50	347,369	.....	349,510	37,687	27,493	9,689	102,490	186,147	53.3	163,363	106,905	56,523	50,605
	8 mos.	50	2,925,006	.....	2,935,806	282,172	206,381	77,798	832,599	1,468,687	50.0	1,467,119	893,624	468,964	560,784
Detroit, Toledo & Ironton	Aug.	464	651,962	1,913	688,514	98,566	149,707	14,508	198,470	487,221	70.8	201,293	109,868	121,134	176,966
	8 mos.	464	5,762,659	11,836	6,087,130	729,446	1,044,496	121,460	1,565,204	3,663,676	60.2	2,423,454	1,368,385	1,369,757	1,696,936
Duluth, Missabe & Iron Range	Aug.	546	5,140,718	8,601	5,955,071	466,201	542,928	4,404	990,634	2,069,137	34.7	3,885,934	2,158,669	2,162,326	1,726,331
	8 mos.	545	23,611,585	47,956	27,430,400	3,086,074	4,339,190	35,128	5,377,146	13,244,746	48.3	14,185,654	7,492,456	7,624,841	5,234,771
Duluth, Winnipeg & Pacific	Aug.	175	204,000	7,800	218,600	65,431	31,153	2,114	79,829	182,487	83.5	36,113	17,948	2,743	9,984
	8 mos.	175	2,210,000	32,600	2,280,000	406,063	259,583	16,757	878,438	1,593,261	69.9	686,739	519,051	265,299	173,312
Elgin, Joliet & Eastern	Aug.	392	2,445,375	56	2,879,536	314,263	774,878	17,273	1,001,833	2,229,886	77.4	649,650	311,304	249,073	183,465
	8 mos.	392	19,773,901	119	22,907,446	2,195,010	6,096,917	136,814	8,191,475	17,196,993	75.1	5,710,453	2,611,147	2,076,856	1,161,511
Erie	Aug.	2,244	11,148,822	1,370,287	13,392,377	1,553,657	2,245,318	215,063	4,678,569	9,182,595	68.6	4,209,782	2,049,545	1,458,692	1,518,916
	8 mos.	2,244	91,108,047	8,752,482	106,468,081	10,525,642	17,969,352	1,816,065	38,400,844	72,322,388	67.9	34,145,693	18,692,934	13,714,065	13,747,118
Florida East Coast	Aug.	682	1,019,375	903,881	2,088,559	351,899	311,273	79,682	699,696	1,574,070	75.4	514,489	371,662	340,338	598,484
	8 mos.	682	11,621,742	9,432,785	22,627,413	2,671,935	2,321,639	423,015	6,140,062	12,574,122	55.6	10,053,291	5,374,091	4,547,011	7,018,276
Georgia Railroad	Aug.	329	650,493	174,198	867,478	126,974	127,148	22,909	308,360	606,954	70.0	260,524	226,880	222,258	312,112
	8 mos.	329	5,327,932	1,281,160	6,957,596	806,260	932,340	173,822	2,466,699	4,552,522	65.4	2,405,074	2,135,533	2,105,838	2,804,138
Georgia & Florida	Aug.	408	275,672	8,794	289,866	74,409	31,683	14,166	93,662	223,172	77.0	66,694	53,972	36,822	48,809
	8 mos.	406	1,541,282	55,704	1,638,579	432,424	201,154	85,830	561,113	1,341,872	81.9	296,707	209,941	121,199	177,562
Grand Trunk Western	Aug.	1,026	2,221,000	510,000	2,915,000	550,209	454,502	37,511	1,132,450	2,328,357	79.9	586,643	429,365	417,754	399,147
	8 mos.	1,026	19,282,000	2,925,000	23,711,000	4,050,417	3,877,230	298,346	9,205,710	18,345,071	77.4	5,365,929	3,717,861	3,439,119	4,472,399
Canadian National Lines in New England	Aug.	172	118,800	20,700	155,900	69,104	32,495	2,229	87,417	209,845	134.6	—53,945	—75,390	—102,667	—152,283
	8 mos.	172	957,600	104,400	1,258,900	390,112	253,594	18,192	725,182	1,544,889	122.7	—285,989	—457,549	—728,974	—836,846
Great Northern	Aug.	8,371	15,775,427	1,870,451	19,159,689	3,175,296	3,100,609	224,143	4,891,004	11,885,763	62.0	7,273,926	3,530,770	3,350,293	3,031,548
	8 mos.	8,372	112,063,639	13,572,857	135,234,823	22,818,019	23,159,802	1,723,706	36,658,331	88,129,867	65.2	47,104,956	20,071,573	18,917,360	19,029,411
Green Bay & Western	Aug.	234	236,886	932	244,779	83,515	24,560	7,898	68,346	190,894	77.9	53,885	14,988	7,571	76,733
	8 mos.	234	1,851,357	5,466	1,909,877	576,780	191,390	66,252	548,723	1,442,941	75.5	466,936	176,716	126,286	456,648
Gulf & Ship Island	Aug.	259	141,569	48,550	221,175	49,444	28,953	2,571	93,192	184,250	83.3	36,925	17,039	2,121	—17,385
	8 mos.	259	1,342,040	387,104	1,926,133	368,247	190,897	20,796	717,703	1,374,687	71.4	551,446	370,091	255,640	—195,840

Gulf & Ship Island	Aug.	259	141,569	48,550	221,175	49,444	28,953	2,571	93,192	184,250	83.3	36,925	17,089	25,124	—19,164
	8 mos.	259	1,342,040	387,104	1,926,133	368,247	190,897	20,796	717,703	1,374,687	71.4	551,446	370,091	255,640	—195,840

REVENUES AND EXPENSES OF RAILWAYS

MONTH OF AUGUST AND EIGHT MONTHS OF CALENDAR YEAR 1944—CONTINUED

Name of road		Av. mileage operated during period	Operating revenues: Freight	Passenger	Total (inc. misc.)	Operating expenses: Maintenance of Way and structures	Maintenance of Equipment	Traffic	Transportation	Total	Operating ratio	Net from railway operation	Operating income	Net railway operating income 1944	Net railway operating income 1943
Gulf, Mobile & Ohio	Aug.	1,952	$2,894,049	$270,153	$3,258,042	$652,774	$586,208	$84,379	$861,472	$2,310,825	70.9	$947,217	$568,051	$401,442	$400,772
	8 mos.	1,969	22,476,385	1,905,153	25,193,661	4,212,516	4,295,455	644,866	6,867,948	16,966,176	67.3	8,227,485	4,407,134	3,162,079	3,350,323
Illinois Central	Aug.	4,823	14,905,565	3,566,513	19,611,994	3,222,700	3,441,571	208,691	5,251,717	12,768,309	65.1	6,843,685	2,055,694	1,814,002	2,537,202
	8 mos.	4,823	114,126,292	25,887,802	149,208,220	21,225,637	26,049,920	1,517,809	41,798,393	95,612,567	64.1	53,595,653	19,893,550	17,597,040	21,795,781
Yazoo & Mississippi Valley	Aug.	1,524	2,509,560	460,667	3,116,247	511,928	369,839	34,060	884,867	1,895,084	60.8	1,221,163	594,431	466,691	182,387
	8 mos.	1,524	18,300,102	3,406,535	22,947,673	3,737,080	2,686,799	242,205	7,415,010	14,822,048	64.6	8,125,625	4,050,601	3,158,463	4,599,787
Illinois Central System	Aug.	6,347	17,415,125	4,027,180	22,728,241	3,734,628	3,811,410	242,751	6,136,584	14,663,393	64.5	8,064,848	2,642,797	2,288,606	2,724,502
	8 mos.	6,347	132,426,394	29,294,337	172,155,893	24,962,717	28,736,719	1,760,014	49,213,403	110,434,615	64.1	61,721,278	23,899,475	20,799,806	26,410,871
Illinois Terminal	Aug.	476	753,789	195,176	1,038,306	106,651	90,174	19,717	299,784	542,494	52.25	495,812	171,145	127,230	126,677
	8 mos.	476	5,638,743	1,452,420	7,733,591	824,173	737,119	158,328	2,292,128	4,223,473	54.61	3,510,118	1,170,454	922,285	955,276
Kansas City Southern	Aug.	878	2,929,441	434,076	3,579,339	451,454	500,704	60,071	954,540	2,096,204	58.6	1,483,135	815,135	507,379	355,556
	8 mos.	878	24,448,574	3,452,887	29,506,534	3,993,338	3,954,859	491,001	7,920,275	17,385,290	58.9	12,121,244	5,782,244	3,759,570	3,918,426
Kansas, Oklahoma & Gulf	Aug.	328	340,456	2,033	345,394	52,805	21,821	9,895	73,738	169,749	49.2	175,545	97,345	78,928	71,860
	8 mos.	328	2,691,477	13,536	2,729,347	331,412	172,316	76,331	608,486	1,276,627	46.8	1,452,720	815,285	630,515	559,273
Lake Superior & Ishpeming	Aug.	156	328,294	135	429,545	38,087	29,751	718	81,339	157,473	36.7	272,072	148,032	154,604	195,266
	8 mos.	156	1,636,354	1,133	2,095,118	259,119	284,088	5,073	465,064	1,077,174	51.4	1,017,944	472,506	534,818	517,383
Lehigh & Hudson River	Aug.	96	235,818	8	236,595	52,423	38,745	5,025	71,621	174,583	73.8	62,012	34,000	16,730	14,113
	8 mos.	96	2,221,011	1,646	2,228,667	392,623	289,029	41,611	648,640	1,428,209	64.1	800,458	351,319	186,792	208,838
Lehigh & New England	Aug.	190	579,365	.....	582,567	49,380	120,857	7,296	163,444	360,734	61.9	221,833	122,656	126,217	116,580
	8 mos.	190	4,250,939	.....	4,275,374	379,683	951,091	61,783	1,242,351	2,796,957	65.4	1,478,417	818,869	897,717	914,978
Lehigh Valley	Aug.	1,260	7,324,561	756,288	8,515,850	1,371,563	1,433,725	115,303	3,139,856	6,271,248	73.6	2,244,602	1,908,237	1,423,783	1,068,447
	8 mos.	1,260	58,011,155	5,737,902	67,222,496	9,593,409	10,747,494	962,363	24,917,386	47,947,094	71.3	19,275,402	11,648,226	7,795,202	8,893,550
Louisiana & Arkansas	Aug.	834	1,524,652	183,443	1,767,233	341,883	221,354	31,921	382,668	1,039,108	58.8	728,125	298,742	201,906	169,766
	8 mos.	834	11,691,810	1,302,103	13,476,001	2,849,233	1,495,861	273,909	2,922,738	8,038,950	59.7	5,437,051	2,047,560	1,460,137	1,488,836
Louisville & Nashville	Aug.	4,744	13,576,858	4,120,475	18,644,710	2,024,556	2,943,466	200,456	5,453,601	11,196,362	60.1	7,448,348	1,827,969	2,183,606	2,226,035
	8 mos.	4,744	103,819,029	30,959,118	143,074,651	15,521,165	23,942,559	1,643,427	41,678,319	87,476,836	61.1	55,597,815	14,267,471	16,638,511	17,636,765
Maine Central	Aug.	988	1,172,140	449,306	1,741,760	341,149	282,785	11,676	566,691	1,250,405	72.0	491,355	212,930	178,172	203,175
	8 mos.	988	9,671,684	2,660,065	13,268,708	2,349,595	2,246,758	101,662	4,608,046	9,702,765	73.0	3,565,943	1,537,746	1,259,601	1,925,927
Midland Valley	Aug.	334	131,293	82	134,728	34,660	11,879	2,469	46,593	100,038	74.3	34,690	27,734	17,470	26,680
	8 mos.	334	1,099,205	1,210	1,118,664	235,267	97,860	19,264	375,045	764,836	68.4	353,828	245,127	154,766	273,786
Minneapolis & St. Louis	Aug.	1,408	1,297,661	45,656	1,395,708	256,635	174,148	63,645	403,649	951,432	68.2	444,276	171,175	146,101	317,339
	8 mos.	1,408	9,412,137	318,856	10,115,809	1,881,805	1,376,703	519,338	3,132,949	7,356,356	72.7	2,759,453	1,283,082	1,179,675	2,376,379
Minneapolis, St. Paul & Sault Ste. Marie	Aug.	4,277	3,787,940	331,609	4,475,371	930,263	752,980	74,428	1,644,842	3,538,035	79.1	937,336	445,030	422,328	1,221,839
	8 mos.	4,277	30,737,065	2,056,005	35,090,077	5,568,464	5,667,767	589,613	12,563,603	25,421,418	72.4	9,668,659	6,894,234	6,557,396	5,500,334
Duluth, South Shore & Atlantic	Aug.	551	310,724	33,315	376,143	84,861	56,673	10,153	132,097	291,827	77.6	84,316	63,405	58,261	128,676
	8 mos.	551	2,422,500	243,635	2,849,356	562,013	459,149	69,889	1,059,797	2,215,117	77.7	634,239	489,138	448,008	641,008
Spokane International	Aug.	152	160,097	7,797	176,915	52,446	11,057	3,382	40,322	114,172	61.2	62,743	31,957	21,898	16,238
	8 mos.	152	1,259,189	73,678	1,400,006	367,674	114,887	27,726	388,285	953,549	68.1	446,457	253,236	160,442	210,508
Mississippi Central	Aug.	158	177,210	6,901	187,472	45,160	21,053	8,800	44,038	125,962	67.2	61,510	40,089	26,987	25,912
	8 mos.	158	1,398,898	50,087	1,470,692	248,858	143,234	71,270	385,850	909,704	61.9	560,988	359,012	254,229	200,458
Missouri & Arkansas	Aug.	365	200,888	4,478	213,374	56,870	26,285	7,458	71,832	164,922	77.3	48,452	49,744	33,962	—5,695
	8 mos.	365	1,554,548	29,845	1,655,108	365,467	186,084	58,872	529,044	1,194,652	72.2	460,456	300,886	168,388	19,515
Missouri-Illinois	Aug.	172	352,721	602	357,918	39,788	37,909	3,548	93,381	181,886	50.8	176,032	110,875	102,523	48,559
	8 mos.	172	2,136,614	10,347	2,162,258	337,870	325,264	30,259	565,842	1,306,830	60.4	855,428	364,819	322,081	274,720
Missouri-Kansas-Texas Lines	Aug.	3,253	5,811,386	1,189,383	7,513,171	1,898,768	912,265	134,397	2,023,773	5,208,128	69.3	2,305,043	858,594	381,174	578,641
	8 mos.	3,265	41,765,321	9,219,820	54,934,733	11,901,845	6,750,229	1,061,780	18,062,680	37,670,379	68.6	17,264,354	7,912,419	4,478,134	4,701,704
Missouri Pacific	Aug.	7,087	15,516,398	3,679,720	20,615,697	2,478,541	2,815,432	326,259	5,309,078	11,498,392	55.8	9,117,305	4,291,929	3,366,707	2,655,534
	8 mos.	7,097	115,870,358	28,749,373	155,318,392	17,913,324	21,279,144	2,445,777	43,225,365	89,302,983	57.5	66,016,409	29,083,926	22,303,266	27,631,804
Gulf Coast Lines	Aug.	1,734	3,029,651	362,624	3,540,420	715,407	380,343	57,577	912,640	2,162,903	60.66	1,377,517	628,843	391,240	462,345
	8 mos.	1,734	28,833,634	2,835,182	32,807,679	4,874,873	2,947,500	461,953	7,551,782	16,563,561	50.49	16,244,118	7,278,358	4,841,083	4,079,031
International Great Northern	Aug.	1,110	1,799,511	586,385	2,626,257	546,790	346,665	36,181	805,455	1,832,871	69.8	793,386	444,648	280,757	351,448
	8 mos.	1,110	14,253,632	4,335,746	20,466,108	3,790,485	2,775,528	287,310	6,572,420	14,227,376	69.5	6,238,732	3,694,567	2,317,894	2,828,289
Monongahela	Aug.	170	550,812	2,984	561,515	71,082	49,443	615	150,355	274,890	49.0	286,625	161,931	69,269	175,928
	8 mos.	170	4,486,517	17,084	4,545,685	582,461	385,053	5,706	1,160,337	2,164,990	47.6	2,380,695	1,383,936	684,803	1,024,596

Table continued on second left-hand page

Let's get *down to earth*

on train communication

ITC

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"Union" I.T.C. (Inductive Train Communication) system provides dependable, practicable two-way voice communication between vehicles on a train, between trains, and between trains and wayside points.

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The messages concerning the operation of your railroad are your own business.

With mail, telegraph and ordinary telephone, an essential degree of privacy is realized, and messages handled over a train communication system should be equally restricted to your own organization. You don't want them to be picked up by other roads, nor do other roads want to receive them.

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When you use "Union" I.T.C. your messages follow your right of way. They go where you want them to go.

Suitable selection of carrier frequencies avoids interferences with other communication systems, or with "Union" I.T.C. systems on parallel or intersecting roads.

That's one more reason why, *for dependable train communication, "Union" I.T.C. is the answer.*

UNION SWITCH & SIGNAL COMPANY

SWISSVALE, PA.

NEW YORK CHICAGO ST. LOUIS SAN FRANCISCO

REVENUES AND EXPENSES OF RAILWAYS

MONTH OF AUGUST AND EIGHT MONTHS OF CALENDAR YEAR 1944—CONTINUED

Name of road		Av. mileage operated during period	Operating revenues: Freight	Passenger	Total (inc. misc.)	Operating expenses: Maintenance of: Way and structures	Equipment	Traffic	Transportation	Total	Operating ratio	Net from railway operation	Operating income	Net railway operating income: 1944	1943
Montour	Aug.	51	$280,903	.....	$282,200	$21,191	$67,830	$995	$74,494	$172,529	61.1	$109,671	$37,063	$77,674	$81,268
	8 mos.	51	2,025,923	.....	2,036,348	145,478	524,885	7,810	579,179	1,319,523	64.8	716,825	218,045	524,995	542,158
Nashville, Chattanooga & St. Louis	Aug.	1,072	2,567,707	$655,848	3,448,996	727,394	750,277	90,325	1,147,071	2,820,012	81.8	628,984	174,448	144,220	256,148
	8 mos.	1,072	20,958,383	5,364,709	28,395,580	4,958,354	5,775,638	648,842	8,773,318	21,017,559	74.0	7,378,021	2,907,656	2,620,741	3,424,462
New York Central	Aug.	10,746	40,799,016	18,096,819	64,462,053	9,654,928	10,860,350	730,107	21,200,060	44,635,689	69.2	19,826,364	7,361,669	6,079,153	8,376,674
	8 mos.	10,746	315,577,959	125,124,978	483,764,390	67,296,777	85,711,314	5,612,202	170,205,434	346,716,931	71.7	137,047,459	58,993,880	46,126,984	62,437,488
Pittsburgh & Lake Erie	Aug.	229	2,840,869	137,722	3,072,903	347,353	948,154	41,389	968,156	2,410,113	78.4	662,790	—84,544	468,144	502,536
	8 mos.	229	22,002,767	901,833	23,625,635	2,619,931	7,506,448	349,120	7,477,339	18,813,448	79.6	4,812,187	—500,888	3,816,671	4,396,094
New York, Chicago & St. Louis	Aug.	1,688	8,098,789	491,366	8,764,472	965,009	1,312,400	135,683	2,567,891	5,197,904	59.3	3,566,568	1,449,994	954,034	1,090,536
	8 mos.	1,688	63,841,774	3,139,832	68,214,969	6,967,510	9,762,241	1,103,222	20,702,107	40,216,362	59.0	27,998,607	11,533,952	7,550,845	9,115,975
New York, New Haven & Hartford	Aug.	1,838	7,405,408	6,824,444	15,416,975	2,205,979	2,329,469	152,323	5,321,333	10,752,909	69.7	4,664,066	2,519,462	1,398,377	3,270,089
	8 mos.	1,838	63,946,529	50,003,799	123,239,719	15,984,163	18,155,438	1,182,720	42,592,147	83,710,719	67.9	39,529,000	24,479,871	15,738,908	23,840,771
New York Connecting	Aug.	21	226,079	.....	247,327	100,739	11,243	.....	62,991	176,707	71.4	70,620	—102,878	113,074	131,203
	8 mos.	21	1,840,733	.....	2,027,501	529,780	101,364	.....	427,932	1,074,701	53.0	952,800	—62,224	1,174,100	929,033
New York, Ontario & Western	Aug.	546	717,296	94,584	872,015	95,058	180,332	22,266	466,339	790,723	90.7	81,292	33,547	—54,431	55,436
	8 mos.	546	5,589,912	402,259	6,473,230	736,790	1,264,183	183,254	3,608,515	6,008,254	92.8	464,976	118,349	—367,660	207,570
New York, Susquehanna & Western	Aug.	120	423,501	36,573	473,106	45,840	26,726	4,114	170,654	264,453	55.90	208,653	129,292	91,835	94,554
	8 mos.	120	3,549,228	284,381	3,946,420	303,167	358,608	37,624	1,399,166	2,228,247	56.46	1,718,173	1,133,362	624,195	735,417
Norfolk & Western	Aug.	2,154	12,808,519	1,625,205	14,821,727	1,449,419	2,573,284	168,749	3,069,937	7,600,353	51.3	7,221,374	1,775,487	2,279,144	1,937,251
	8 mos.	2,154	92,707,407	11,700,999	107,629,258	11,564,363	20,973,791	1,285,950	23,522,652	60,129,674	55.9	47,499,584	12,156,562	17,396,342	15,337,150
Norfolk Southern	Aug.	727	704,732	35,489	761,020	166,075	84,771	28,120	143,753	552,346	72.6	208,674	124,532	90,288	48,356
	8 mos.	728	5,161,383	241,610	5,574,655	1,328,431	652,863	226,351	1,912,865	4,336,669	77.8	1,237,986	737,531	499,407	708,510
Northern Pacific	Aug.	6,867	10,281,443	2,022,858	13,437,505	1,982,789	2,470,385	189,562	3,990,233	9,187,363	68.4	4,250,142	1,588,852	1,763,230	2,888,194
	8 mos.	6,867	78,449,990	14,936,359	101,866,605	13,905,386	19,530,605	1,456,770	29,812,281	69,231,498	68.0	32,635,107	11,540,154	14,397,146	20,037,575
Northwestern Pacific	Aug.	331	556,331	28,604	613,982	143,920	70,610	2,439	207,929	431,647	70.3	182,335	156,723	124,906	187,663
	8 mos.	331	3,649,537	163,091	3,984,521	1,362,218	498,631	22,961	1,344,494	3,281,897	82.4	702,624	488,338	302,843	783,536
Oklahoma City-Ada-Atoka	Aug.	132	140,323	259	141,172	26,569	4,224	1,113	28,906	65,283	46.2	75,889	41,166	26,457	31,424
	8 mos.	132	1,059,810	4,681	1,074,428	157,182	38,434	9,782	235,747	476,594	44.4	597,834	344,947	234,352	208,691
Pennsylvania	Aug.	10,090	59,532,496	23,350,064	89,315,259	10,407,533	16,657,241	1,043,221	31,651,371	62,606,820	70.1	26,708,439	11,362,233	10,108,054	18,940,176
	8 mos.	10,099	456,197,653	173,158,775	679,185,898	78,293,141	127,268,383	8,288,611	258,654,482	494,721,642	72.9	183,464,256	86,531,403	77,994,108	96,263,623
Long Island	Aug.	376	1,321,365	3,220,277	4,732,910	539,106	559,165	28,486	1,707,157	2,886,766	61.0	1,846,144	1,093,783	841,966	1,141,980
	8 mos.	376	9,610,394	19,567,029	30,600,508	4,548,289	4,419,819	178,185	13,059,608	22,650,146	74.0	7,950,362	4,156,324	2,240,111	3,419,796
Pennsylvania-Reading Seashore Lines	Aug.	392	580,581	1,200,942	1,827,926	146,767	95,527	7,337	574,756	846,679	46.3	981,247	795,391	618,674	717,632
	8 mos.	392	4,130,203	4,393,819	8,809,790	1,249,562	790,346	71,280	3,858,970	6,191,401	70.3	2,618,389	1,685,749	686,341	1,446,650
Pere Marquette	Aug.	1,949	4,306,736	474,800	5,106,355	988,332	894,853	72,584	1,674,227	3,811,824	74.6	1,294,531	832,076	742,780	546,670
	8 mos.	1,968	33,771,198	2,828,609	38,404,792	6,513,449	6,703,063	579,122	13,299,005	28,548,644	74.3	9,856,148	4,077,226	3,437,468	4,536,933
Pittsburg & Shawmut	Aug.	97	141,051	.....	141,769	35,520	25,824	1,752	40,892	109,381	77.2	32,388	27,868	25,060	24,866
	8 mos.	97	1,035,731	.....	1,040,861	255,282	201,987	15,242	289,551	810,042	77.8	230,819	180,481	166,492	170,522
Pittsburgh & West Virginia	Aug.	136	641,098	.....	658,536	139,436	125,149	21,392	158,798	479,743	72.8	178,793	107,132	126,742	140,444
	8 mos.	136	4,723,356	90	4,868,308	857,669	920,901	168,437	1,211,621	3,380,096	69.4	1,488,212	896,293	1,086,126	1,241,827
Pittsburg, Shawmut & Northern	Aug.	190	103,599	.....	104,574	30,786	21,338	1,000	44,158	102,601	98.1	1,973	—4,820	—9,736	21,831
	8 mos.	190	855,995	.....	865,979	206,382	184,626	8,789	372,575	818,660	94.5	47,319	—7,370	—52,301	101,154
Reading	Aug.	1,410	8,474,486	889,499	9,791,949	1,389,121	1,902,231	88,024	3,334,985	6,932,047	70.8	2,859,902	1,039,770	995,175	957,708
	8 mos.	1,412	67,441,241	6,897,863	77,815,969	9,526,557	15,143,069	665,830	26,404,356	53,372,921	68.6	24,443,048	10,753,664	9,723,355	12,198,078
Richmond, Fredericksburg & Potomac	Aug.	118	1,359,373	1,435,374	3,019,300	229,559	428,766	16,397	764,683	1,579,132	52.3	1,440,168	350,228	226,650	330,316
	8 mos.	118	12,333,967	11,185,736	25,616,949	1,631,392	2,960,514	119,357	6,260,488	11,931,717	46.6	13,685,232	3,556,134	2,227,132	2,703,262
Rutland	Aug.	407	280,438	93,252	454,141	67,679	87,753	12,528	227,342	411,527	90,6	42,614	15,030	13,114	41,029
	8 mos.	407	2,315,813	482,698	3,320,003	497,249	701,175	96,527	1,704,151	3,121,953	94.0	198,050	—4,176	854	168,008
St. Louis-San Francisco	Aug.	4,646	7,277,037	2,111,486	10,089,526	1,309,528	1,863,590	169,956	3,099,932	6,802,862	67.4	3,286,664	1,448,196	1,418,420	2,220,349
	8 mos.	4,651	54,809,485	16,356,341	76,509,862	10,279,687	14,093,396	1,333,951	24,337,005	52,811,110	69.0	23,698,752	10,958,240	10,746,766	15,322,441
St. Louis, San Francisco & Texas	Aug.	159	338,160	16,880	363,643	43,141	32,183	10,006	105,965	198,456	54.6	165,187	69,696	41,825	103,242
	8 mos.	159	2,491,731	212,823	2,766,106	293,753	240,080	88,160	809,642	1,489,841	53.9	1,276,265	519,433	315,518	705,034

REVENUES AND EXPENSES OF RAILWAYS

MONTH OF AUGUST AND EIGHT MONTHS OF CALENDAR YEAR 1944—CONTINUED

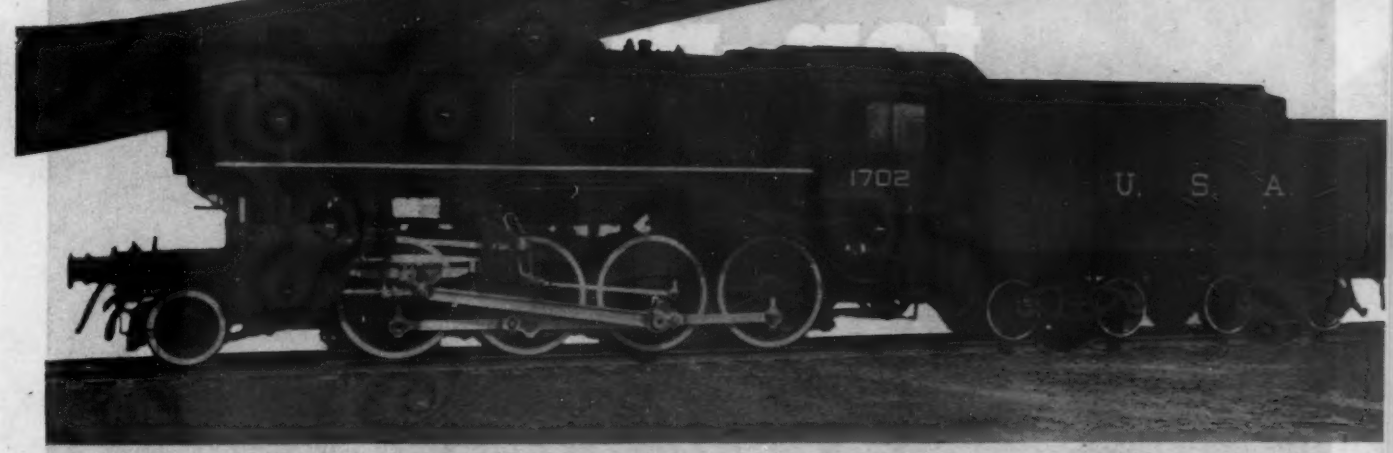
Name of road		Av. mileage operated during period	Operating revenues: Freight	Passenger	Total (inc. misc.)	Operating expenses: Maintenance of Way and structures	Maintenance of Equipment	Traffic	Transportation	Total	Operating ratio	Net from railway operation	Operating income	Net railway operating income: 1944	1943
St. Louis Southwestern Lines	Aug.	1,607	$6,273,616	$469,167	$6,900,579	$740,316	$580,763	$101,888	$1,295,050	$2,860,578	41.5	$4,040,001	$1,419,226	$1,111,071	$870,752
	8 mos.	1,607	42,863,206	2,692,076	46,638,705	5,107,158	4,470,756	793,645	10,728,265	22,147,468	47.5	24,491,237	9,040,416	6,717,844	7,708,108
Seaboard Air Line	Aug.	4,174	6,818,171	3,549,660	11,091,811	1,460,845	1,668,571	257,943	3,392,599	7,284,162	65.7	3,807,649	2,077,649	1,758,966	2,202,775
	8 mos.	4,175	60,426,453	28,768,503	95,073,116	11,568,205	13,161,270	1,864,318	28,068,315	58,648,508	61.7	36,424,608	18,794,608	15,155,350	23,778,214
Southern Railway	Aug.	6,505	16,649,651	5,235,145	23,097,294	2,620,466	3,514,203	238,808	6,353,914	13,428,619	58.1	9,668,675	3,284,813	3,011,570	3,283,482
	8 mos.	6,511	124,251,546	39,897,374	173,933,473	20,665,576	26,582,465	1,689,646	49,090,995	103,142,368	59.3	70,791,105	24,846,756	22,166,270	23,714,830
Alabama Great Southern	Aug.	315	1,301,315	445,600	1,833,248	185,341	321,725	25,581	548,834	1,135,807	62.0	697,441	228,708	155,833	287,788
	8 mos.	315	10,904,256	3,292,580	14,935,336	1,407,093	2,394,668	179,974	4,423,581	8,876,014	59.4	6,059,319	1,808,551	1,326,270	1,819,417
Cincinnati, New Orleans & Texas Pacific	Aug.	337	2,467,872	643,555	3,260,961	305,153	746,651	39,927	839,979	2,021,253	62.0	1,239,708	385,663	386,167	615,560
	8 mos.	337	19,436,328	5,103,493	25,736,537	2,447,818	5,273,756	284,517	6,591,320	15,309,288	59.5	10,427,249	3,138,941	3,347,853	4,145,883
Georgia Southern & Florida	Aug.	397	279,147	228,443	557,583	89,504	68,942	2,606	194,012	372,558	66.8	185,025	96,977	64,936	123,275
	8 mos.	397	2,459,122	1,624,024	4,502,516	645,257	589,103	20,863	1,443,432	2,831,405	62.9	1,671,111	762,901	469,620	817,028
New Orleans & Northeastern	Aug.	204	834,512	251,672	1,133,309	125,827	132,767	13,180	302,366	611,668	54.0	521,641	200,393	126,583	141,797
	8 mos.	204	6,562,018	1,694,470	8,640,561	1,037,368	947,408	91,363	2,519,634	4,893,196	56.6	3,747,365	1,427,074	779,686	1,087,459
Southern Pacific	Aug.	8,262	32,295,679	8,082,732	43,938,234	5,387,109	7,635,279	653,644	13,442,842	29,289,697	66.7	14,648,537	4,459,669	2,791,258	3,578,980
	8 mos.	8,262	232,849,683	71,980,907	330,980,208	45,309,239	59,149,726	4,812,867	100,222,400	226,598,652	68.5	104,381,556	37,352,861	25,866,213	41,279,931
Texas & New Orleans	Aug.	4,335	8,362,179	2,599,758	11,591,610	1,505,591	1,501,328	155,299	3,059,902	6,591,663	56.9	4,999,947	1,624,283	1,102,832	2,307,187
	8 mos.	4,340	65,370,224	19,486,687	89,688,019	11,717,707	10,880,521	1,228,933	22,765,512	49,589,958	55.3	40,098,061	14,747,673	10,664,586	19,549,944
Spokane, Portland & Seattle	Aug.	944	2,116,490	193,106	2,446,005	536,404	209,015	12,344	613,864	1,431,149	58.5	1,014,856	914,114	722,660	490,461
	8 mos.	944	14,173,195	1,641,359	16,720,803	4,282,133	1,527,859	107,367	5,005,403	11,435,710	68.4	5,285,093	3,990,288	2,565,886	4,182,900
Tennessee Central	Aug.	286	317,376	55,952	392,741	89,367	65,252	6,925	129,256	307,085	78.2	85,656	42,465	27,157	27,435
	8 mos.	286	2,737,756	459,151	3,354,272	691,674	523,556	55,662	1,062,741	2,474,312	73.8	879,960	494,219	352,701	506,410
Texas & Pacific	Aug.	1,884	4,441,435	1,802,988	6,815,226	944,349	870,427	115,348	1,638,581	3,846,035	56.4	2,969,191	799,787	549,809	794,646
	8 mos.	1,884	34,384,115	14,287,647	53,158,793	7,124,052	7,710,487	883,390	12,429,344	30,347,772	57.1	22,811,021	5,993,201	4,462,414	6,145,482
Texas Mexican	Aug.	162	194,641	1,109	219,928	25,892	21,550	3,887	50,320	111,031	50.5	108,897	79,231	75,826	60,902
	8 mos.	162	1,411,190	7,967	1,627,383	193,156	138,205	33,399	394,126	835,600	51.3	791,783	579,065	509,559	419,347
Toledo, Peoria & Western	Aug.	239	401,736	115	407,663	28,961	22,042	25,037	84,696	175,285	43.0	232,378	212,613	192,525	203,220
	8 mos.	239	3,523,249	617	3,558,767	305,312	173,123	191,904	708,221	1,481,389	41.6	2,077,378	1,857,164	1,678,917	1,378,029
Union Pacific System	Aug.	9,782	34,024,640	7,951,189	45,321,171	5,549,161	6,782,603	555,315	11,801,917	26,533,642	58.5	18,787,529	4,959,619	3,639,849	3,086,223
	8 mos.	9,782	236,303,355	61,974,288	322,363,680	44,845,491	57,568,566	4,647,877	90,024,341	211,849,024	65.7	110,514,656	31,118,272	23,638,489	29,544,189
Utah	Aug.	111	101,676	.....	101,723	9,809	35,261	636	31,045	81,173	79.8	20,550	11,177	10,176	18,816
	8 mos.	111	923,178	.....	923,922	107,912	315,513	4,539	282,142	745,010	80.6	178,912	100,825	80,171	91,027
Virginian	Aug.	657	2,448,499	11,493	2,547,916	293,998	601,121	26,755	483,645	1,459,576	57.3	1,088,340	476,340	595,935	700,972
	8 mos.	657	19,229,763	75,462	19,958,174	2,046,584	4,447,337	197,864	4,045,818	11,198,961	56.1	8,759,213	4,045,213	4,841,516	4,923,793
Wabash	Aug.	2,393	6,362,620	965,502	7,816,725	1,091,007	999,502	174,207	2,431,611	4,955,587	63.4	2,861,138	1,142,988	712,671	940,892
	8 mos.	2,393	52,516,819	7,180,867	63,376,915	8,109,277	7,822,839	1,302,787	19,417,505	38,661,504	61.0	24,715,411	9,064,036	6,037,325	7,799,151
Ann Arbor	Aug.	294	464,079	21,375	521,051	61,892	88,878	16,767	202,686	384,163	73.7	136,888	66,378	64,491	52,815
	8 mos.	294	3,701,665	92,263	3,931,119	487,599	674,673	129,195	1,602,464	2,991,109	76.1	940,010	491,005	464,520	569,659
Western Maryland	Aug.	840	3,054,174	34,274	3,170,587	570,300	611,620	43,609	842,486	2,163,608	68.2	1,006,979	485,979	521,815	725,252
	8 mos.	840	24,033,748	257,349	24,955,287	3,236,744	4,702,207	350,500	6,627,179	15,646,747	62.7	9,308,540	4,406,540	4,640,209	5,383,699
Western Pacific	Aug.	1,195	3,498,487	653,361	4,291,968	628,599	700,046	85,133	1,330,532	2,899,032	67.5	1,392,936	667,536	513,939	1,598,357
	8 mos.	1,195	26,358,257	5,122,064	32,664,575	4,328,001	4,659,098	648,114	9,922,702	20,736,269	63.5	11,928,306	5,444,386	4,441,016	7,982,032
Wheeling & Lake Erie	Aug.	507	2,229,766	1	2,329,660	331,680	420,329	40,655	674,229	1,518,490	65.2	811,170	150,456	288,318	371,858
	8 mos.	507	16,102,458	17	16,685,746	1,898,596	3,134,581	328,368	4,985,653	10,756,995	64.5	5,928,751	846,396	2,191,583	2,554,627

"Helping the RED CROSS

SIGNAL CORPS PHOTO

BALDWIN SERVES THE NATION WHICH THE RAILROADS

DO THEIR JOB OVERSEAS"



This Baldwin-built U. S. Army locomotive, at the head of a hospital train somewhere in Italy, is a typical example of the diversified service in which these rugged 2-8-0 type locomotives are used.

On all battle fronts they are hauling men, munitions and military supplies of all kinds. They are an integral part of the transportation miracle that enables our troops to keep going forward.

Baldwin locomotives, at home, are busy helping the American Railroads to do their part of the job without which there could be no final victory.

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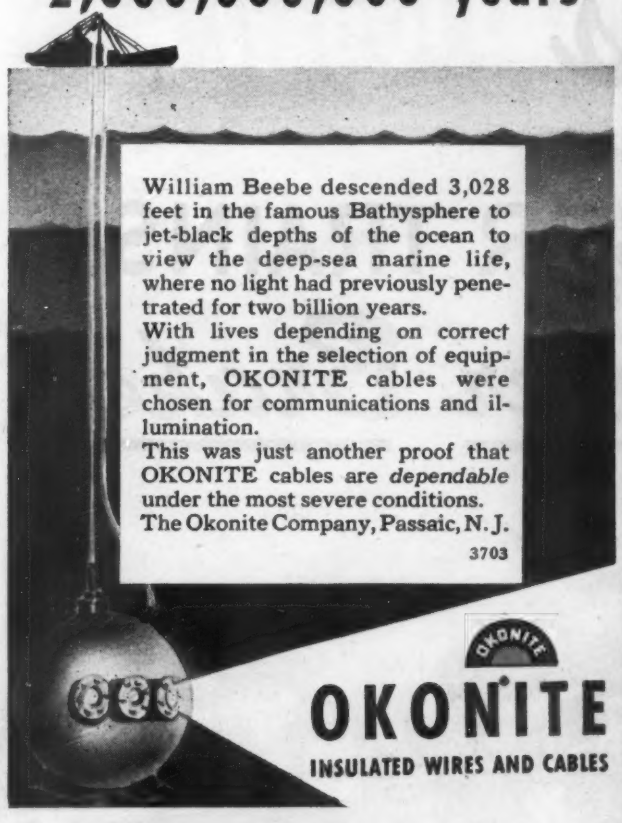

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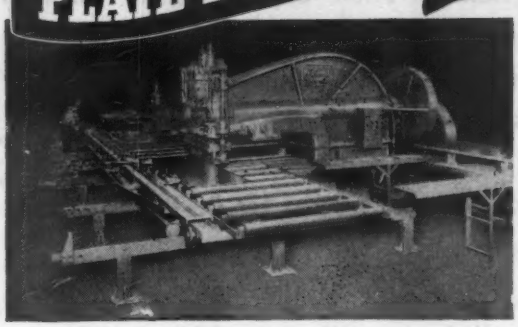

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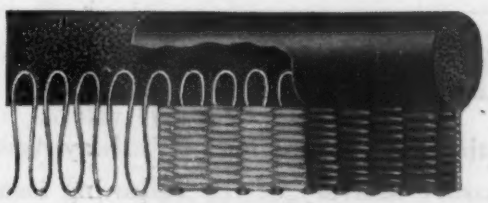

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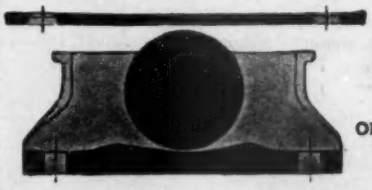
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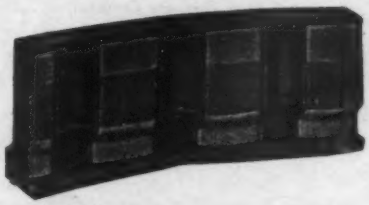

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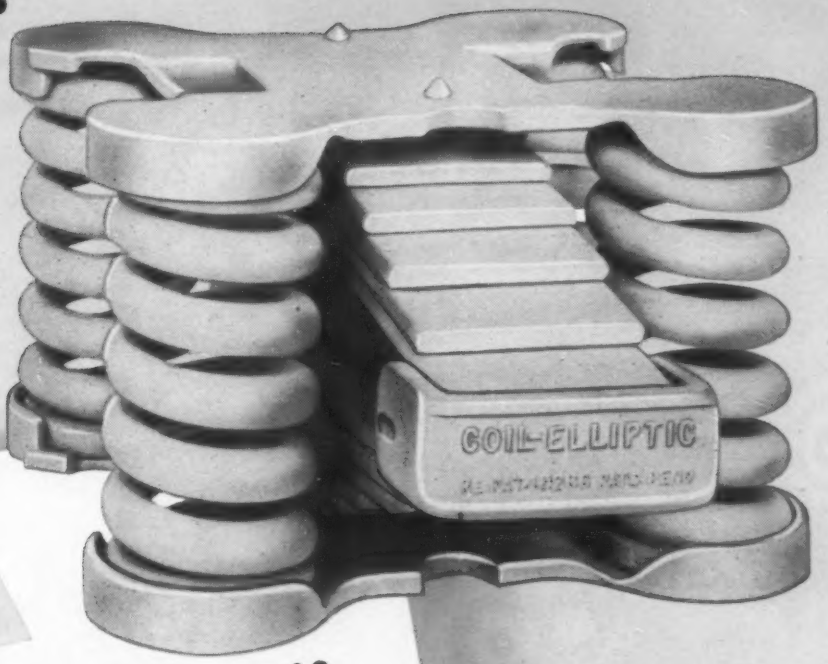

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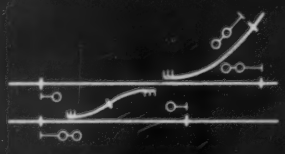

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Eliminates stops, time for hand-throwing switches, high-balling, etc.
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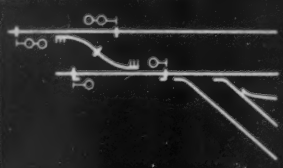

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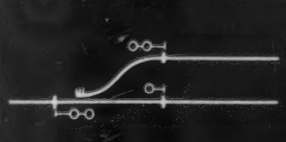
AT ENDS OF DOUBLE TRACK—



Provides desired control over trains entering or leaving single track.
Eliminates train stops.
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